

University of Helsinki, Institute of Behavioural Sciences,  
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**Heta Tuominen-Soini**

## **STUDENT MOTIVATION AND WELL-BEING**

**Achievement Goal Orientation Profiles, Temporal Stability, and  
Academic and Socio-Emotional Outcomes**

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Helsinki 2012

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and academic and socio-emotional outcomes**

**Abstract**

The purpose of this dissertation was to examine students' achievement goal orientation profiles, the stability and change in these profiles, and academic and socio-emotional outcomes. Accordingly, Study I examined lower and upper secondary school students' ( $N = 1321$ ) achievement goal orientation profiles and the differences in general and academic well-being and academic achievement; Study II investigated the temporal stability in lower ( $N = 530$ ) and upper secondary school ( $N = 519$ ) students' achievement goal orientation profiles preceding educational transitions and the differences in motivation and academic achievement; and Study III examined students' ( $N = 579$ ) achievement goal orientation profiles, temporal stability, and the differences in academic well-being across an educational transition as well as the parallel changes in motivation and well-being.

Utilizing a person-centred approach and latent profile analysis, distinct groups of students with different motivational profiles were extracted with considerable consistency in the profiles across all studies and academic contexts. Groups with a dominant tendency towards mastery (mastery-oriented students), performance (success-oriented and/or performance-oriented students), and avoidance (avoidance-oriented and/or disengaged students) as well as a group of students without a dominant tendency towards any specific achievement goal orientation (indifferent students) were found. Students predominantly emphasizing mastery displayed the most adaptive pattern of academic and socio-emotional functioning. Students' preference for performance-related goals and outcomes was, in turn, related to some adjustment problems and socio-emotional vulnerability. For example, both the mastery- and success-oriented students were highly engaged in studying, found their schoolwork meaningful, and were doing well in school, although the success-oriented students' stronger concerns with performance made them more vulnerable to emotional distress and school burnout. The indifferent students represented the typical student who acknowledges the goals of learning and doing well in school, but at the same time tries to minimize the effort and time spent on studying. Their motivation

for learning and studying was less than optimal but, then again, they did not seem to have any particular problems either. Students deliberately aiming to avoid schoolwork showed the most maladaptive pattern of academic and socio-emotional functioning; for example, they displayed relatively low engagement and academic achievement and high levels of cynicism and inadequacy.

The motivational profiles were rather stable over time. Around 60% of lower and upper secondary school students displayed identical motivational profiles within and between the school years, and half of the students displayed identical profiles across the transition to upper secondary education. In addition, most of the changes in the group memberships were directed towards neighbouring groups, and there were only few clear changes. The results support the conception of achievement goal orientation as a disposition that reflects students' generalized beliefs and tendencies to select certain goals and to favour certain outcomes.

In conclusion, secondary school students endorse multiple achievement-related goals and outcomes simultaneously, and the patterns of these strivings are differentially associated with academic and socio-emotional functioning, yet rather stable both preceding and across educational transitions. The findings demonstrate the importance of including measures of well-being when evaluating the role of achievement goal orientations in learning and achievement. The results show that the educational transition periods for youth are not entirely characterized by either school disengagement and distress or school engagement and well-being. It is therefore crucial to focus on individual development in motivation and well-being; some students encounter declining motivation and different types of adjustment problems, while some navigate this phase without notable problems, and some even become increasingly motivated and engaged in studying.

**Keywords:** motivation, achievement goal orientation, stability and change, well-being, person-centred approach, educational transition

**Heta Tuominen-Soini**

## **NUORTEN OPISKELUMOTIVAATIO JA HYVINVOINTI**

### **Tavoiteorientaatioprofiilit, niiden ajallinen pysyvyys ja muutos sekä erot sosio-emotionaalisessa hyvinvoinnissa**

#### **Tiivistelmä**

Tämä väitöstutkimus tarkasteli nuorten opiskelumotivaation ja hyvinvoinnin yhteyksiä ja kehitystä ennen koulutussiirtymiä ja koulutussiirtymän aikana. Tutkimuksessa hyödynnettiin henkilösuuntautunutta näkökulmaa, jossa keskeistä on erilaisten yhtenäisten osaryhmien tunnistaminen ja niiden välisten erojen tarkastelu. Ryhmittely tehtiin tavoiteorientaatioiden eli oppimiseen ja suoriutumiseen liittyvien suuntautumistapojen perusteella. Ensimmäisen osatutkimuksen tavoitteena oli selvittää, minkälaisia tavoiteorientaatioprofiileja voidaan tunnistaa yhdeksännellä luokalla ja lukiossa ( $N = 1321$ ) ja miten erilaisen tavoiteorientaatioprofiilin omaavat nuoret eroavat toisistaan yleisen ja kouluun liittyvän hyvinvoinnin sekä koulumenestyksen suhteen. Toinen osatutkimus tarkasteli tavoiteorientaatioprofiilien ajallista pysyvyyttä ja muutoksia ennen koulutussiirtymiä yhdeksännellä luokalla ( $N = 530$ ) ja lukiossa ( $N = 519$ ) sekä tavoiteorientaatioryhmien eroja muiden motivaatiomuuttujien ja koulumenestyksen suhteen. Kolmas osatutkimus täydensi aiempia tutkimuksia tarkastelemalla nuorten ( $N = 579$ ) tavoiteorientaatioprofiileja, niiden ajallista pysyvyyttä siirryttäessä toisen asteen koulutukseen, ryhmien eroja kouluun liittyvässä hyvinvoinnissa sekä motivaation ja hyvinvoinnin rinnakkaisia muutoksia.

Malliperustaisen ryhmittelyanalyysin avulla nuoret jaettiin heidän tavoiteorientaatioprofiiliensa perusteella oppimista (oppimisorientoituneet), suoriutumista (menestys- ja/tai suoritusorientoituneet) ja välttelemistä (välttämisorientoituneet ja/tai irrottautuneet) korostaviin osaryhmiin sekä ryhmään, jolla ei korostu mikään tietty tavoiteorientaatio (sitoutumattomat). Hyvin samankaltaisia ryhmiä löydettiin kaikissa osatutkimuksissa sekä eri opiskelukonteksteissa. Eri tavoin orientoituneet nuoret erosivat toisistaan odotusten mukaisesti niin muiden motivaatiomuuttujien, hyvinvoinnin kuin koulumenestyksenkin suhteen. Oppimisorientoituneet nuoret korostivat kouluun liittyvissä pyrkimyksissään uusien asioiden oppimista ja tiedonhallintaa, mikä oli yhteydessä koulunkäynnin mielekkään kokemiseen, koulutustavoitteisiin sitoutumiseen, hyvään koulumenestykseen ja hyvinvointiin. Myös menestysorientoituneet nuoret tavoittelivat oppimista, olivat sitoutuneita opiskeluun ja menestyivät koulussa hyvin, mutta toisaalta voimakas pyrkimys menestymiseen oli yhteydessä epä-

onnistumisen pelkoon ja alttiuteen erilaisille hyvinvoinnin ongelmille, kuten koulu-uupumukselle ja stressille. Suurin ryhmä oli sitoutumattomien joukko, joka toisaalta tunnusti opiskelun ja arvosanojen merkityksen, mutta toisaalta oli jokseenkin haluton panostamaan niiden tavoitteluun. Välttämisorientoituneet nuoret halusivat välttää opiskelun rasituksia ja selvitä koulunkäynnistä mahdollisimman vähällä. Sitoutumattomien ja välttämisorientoituneiden nuorten motivationaaliset profiilit olivat kielteisempiä kuin oppimis- ja menestysorientoituneiden ja he myös kokivat koulunkäynnin vähemmän mielekkäänä. Lisäksi välttämisorientoituneiden koulumenestys oli heikkoa ja he kokivat kyynisyyden ja riittämättömyyden tunteita koulussa.

Ryhmät olivat ajallisesti melko pysyviä lukuvuoden sisällä, lukuvuosien välillä ja jopa koulutussiirtymän aikana. Motivationaalinen profiili oli pysyvä 60 %:lla nuorista ennen koulutussiirtymää ja 50 %:lla koulutussiirtymän aikana. Lisäksi muutokset ryhmäjäsenyyksissä suuntautuivat toisiin samankaltaisiin ryhmiin ja muutoksia ääripäihin oli vain vähän. Tulokset tukevat ajatusta, että tavoiteorientaatiot kuvastavat melko pysyviä yleistyneitä uskomuksia ja suuntautumistapoja, jotka seuraavat opiskelijoita erilaisiin oppimistilanteisiin.

Tutkimus osoittaa, että tutkittaessa nuorten opiskelumotivaatiota ja kouluasuoriutumista, on erittäin tärkeää tarkastella samanaikaisesti myös sosio-emotionaalista hyvinvointia. Myös yksilöllisten kehityspolkujen tarkastelu on tärkeää, sillä tulosten mukaan nuoruudessa koulutussiirtymien aikaan vain osalla nuorista opiskelumotivaatio laskee ja heillä on erilaisia hyvinvoinnin ongelmia, kun taas toisilla ei ole suurempia ongelmia, ja jotkut nuorista jopa innostuvat opiskelusta ja sitoutuvat koulutyöhön entistä enemmän.

**Avainsanat:** motivaatio, tavoiteorientaatio, pysyvyys ja muutos, hyvinvointi, henkilösuuntautunut lähestymistapa, koulutussiirtymä

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In all of the original studies for this dissertation, the data were drawn from the Finnish Educational Transitions (FinEdu) Studies, which is a collaborative project by the Helsinki Collegium for Advanced Studies and the Department of Psychology at the University of Jyväskylä. The project started in the year 2003 and has been mainly funded by the Academy of Finland and the Jacobs Foundation. I started out as a research assistant for this project, an opportunity that turned out to be a significant point in my career as later I began to plan my dissertation based on the project. I have been fortunate to have the opportunity to be involved in the planning and implementation of the data collection from the very beginning. I am grateful for the chance to have been part of such a large-scale follow-up study. I want to thank Katariina Salmela-Aro and all colleagues and the personnel working on these longitudinal data sets. I also thank Professor Jari-Erik Nurmi who provided valuable feedback when I started to plan my PhD



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Helsinki, October 2012

Heta Tuominen-Soini



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## ORIGINAL ARTICLES

This dissertation is based on the following three original publications, which are referred to in the text by their Roman numerals (Studies I–III):

**Study I.** Tuominen-Soini, H., Salmela-Aro, K., & Niemivirta, M. (2008). Achievement goal orientations and subjective well-being: A person-centred analysis. *Learning and Instruction*, 18, 251–266.  
doi:10.1016/j.learninstruc.2007.05.003

**Study II.** Tuominen-Soini, H., Salmela-Aro, K., & Niemivirta, M. (2011). Stability and change in achievement goal orientations: A person-centered approach. *Contemporary Educational Psychology*, 36, 82–100.  
doi:10.1016/j.cedpsych.2010.08.002

**Study III.** Tuominen-Soini, H., Salmela-Aro, K., & Niemivirta, M. (2012). Achievement goal orientations and academic well-being across the transition to upper secondary education. *Learning and Individual Differences*, 22, 290–305.  
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# 1 INTRODUCTION

In contemporary achievement motivation literature, a variety of concepts related to motivation has been discussed. One prominent way of examining individual differences in achievement behaviour is to look at the different goals students hold or adopt in achievement situations (Urdan, 1997). Accordingly, in the present dissertation, young people's motivational strivings are approached by focusing on the goals they pursue within a given educational setting (see Boekaerts & Niemivirta, 2000). Achievement goal orientations describe students' general orientations towards learning and studying, that is, the kinds of goals they tend to choose and the kinds of outcomes they prefer in relation to studying (see Niemivirta, 2002b, 2004a). The central distinction in the achievement goal literature has been between students' strivings towards developing their competence and towards demonstrating their competence, that is, between mastery and performance goals. Students' focus on learning and self-improvement has proven adaptive in terms of motivation and learning (e.g., Meece & Holt, 1993). In turn, students' emphasis on demonstrating their ability and outperforming others has often been associated with academic performance (e.g., Elliot & Church, 1997; Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997), but also with some adjustment problems and socio-emotional vulnerability (e.g., Kaplan & Maehr, 1999). However, understanding student motivation is a complex matter, and, indeed, later research has expanded this dichotomous scheme by describing additional goals related to achievement behaviour.

The present study adheres to the multiple goals perspective<sup>1</sup> and explores patterns of five distinct achievement goal orientations (i.e., mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, and avoidance). What can be inferred about the prevalence and functionality of achievement goal orientations when students' more diverse and concurrent motivational strivings are taken into account and linked with a broad range of academic and socio-emotional functioning? This dissertation seeks to contribute to this question.

Although a large body of research has examined how achievement goals relate to various types of personal outcomes (e.g., self-efficacy, interest; see Niemivirta, 2002b) and achievement-related outcomes (e.g., grades, task performance; see Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000), less is known about how

---

<sup>1</sup> In the present work, the term "multiple goals perspective" refers to a perspective in which students' simultaneous multiple goals are addressed (see Pintrich, 2000b), not a perspective emphasizing the positive potential of performance-approach goals alongside mastery goals (cf., Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Senko, Hulleman, & Harackiewicz, 2011).

achievement goal orientations relate to young people's socio-emotional well-being. This is quite surprising, given that the seminal work on achievement goals (Dweck & Elliott, 1983; Nicholls, 1984) has suggested that some students have a stronger need to validate their competence than others and this tendency makes them more vulnerable to situations that potentially imply incompetence or otherwise pose a threat to self-esteem. Kaplan and Maehr (1999) concluded that achievement goals are linked with emotions and cognitions that not only contribute to effective learning, but also relate to well-being more generally.

It seems apparent that school, studying, and academic achievement are important to students' self-evaluations and socio-emotional functioning, especially among adolescents given their heightened self-consciousness about their abilities. Adolescents' academic and emotional functioning are somewhat interdependent and these two domains need to be combined when studying young people. Considering the academic domain alone would be seriously limited. For instance, while international comparisons suggest that Finnish youth are rather competent learners (see e.g., PISA, 2006), there are also some worrying findings indicating that Finnish students might not be necessarily thriving in school. The findings from the cross-national HBSC survey (despite its somewhat questionable methodology) suggests that 11-, 13-, and 15-year-olds in Finland are less likely to report liking school a lot and more likely to report being pressured by schoolwork than students participating in this survey on average (Currie et al., 2012). Adaptation to the demands of school life can be seen as a central life task of adolescence, one that contributes to young people's overall sense of well-being (see Eccles & Roeser, 2011; Roeser, Eccles, & Sameroff, 1998; Salmela-Aro, 2011). Therefore, and in accordance with researchers who have highlighted the need for an integration of educational and socio-emotional perspectives on adolescent development (e.g., Boekaerts, 1993; Lehtinen, Vauras, Salonen, & Olkinuora, 1995; Roeser, Eccles, & Strobel, 1998; Roeser, Eccles, & Freedman-Doan, 1999), the present work links the study of motivation with well-being and explores both during a phase of life that is full of age-graded developmental tasks, transitions, challenges, demands, and possibilities (see Nurmi, 2004; Salmela-Aro, 2011). Of the various constructs associated with adolescents' academic and socio-emotional functioning, this study focuses on general well-being (self-esteem, depressive symptoms), academic well-being (school burnout, schoolwork engagement, school value, satisfaction with educational choice), motivation (fear of failure, academic withdrawal, education-related goal appraisals), and academic achievement.

Furthermore, the majority of research on achievement goal orientations has been cross-sectional, and, therefore, more studies are needed that use longitudinal designs to investigate stability and change in achievement goal orientations. In general, researchers have suggested that negative changes in school motiva-

tion, achievement, and psychological well-being take place during early adolescence, especially during educational transitions (e.g., E. M. Anderman, Maehr, & Midgley, 1999; Eccles & Roeser, 2011; Roeser & Eccles, 1998; Roeser et al., 1999; Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006). However, not all students experience these negative shifts; many go through this phase without adjustment problems or declining motivation (Ratelle, Guay, Larose, & Senécal, 2004; Roeser et al., 1999). Therefore, instead of merely considering overall developmental trends, it is crucial to address the question of individual development over time. According to the life-span model of motivation (Salmela-Aro, 2009), transitions are the triggers that channel the engagement and disengagement processes. Consequently, this study aims at complementing prior work by relying on representative longitudinal data, employing both variable- and person-centred approaches, and focusing on the critical (i.e., transitional) period of young people's development.

In sum, the purpose here is to investigate the educational transition period of youth with a special emphasis on the role of motivation and well-being. More specifically, the aim is to examine students' achievement goal orientation profiles, the stability of and change in these profiles, and the academic and socio-emotional outcomes, as well as parallel changes in motivation and well-being across an educational transition. Thus, the results of this dissertation will inform us about individual differences in and developmental trends of adolescents' achievement goal orientations and academic and socio-emotional functioning.

The dissertation consists of two parts. The first part is a summary including introduction, aims and methods, overview of the original studies, main findings and discussion, and methodological and pedagogical considerations. The second part consists of three empirical articles focusing on students' achievement goal orientations and well-being. These original studies have been published in international peer-reviewed journals (*Learning and Instruction*, *Contemporary Educational Psychology*, and *Learning and Individual Differences*).

## **1.1 Achievement Goal Orientations**

Social cognitive models of achievement motivation include a variety of motivation-related constructs, such as beliefs, achievement values, achievement goal orientations, and interests (for a review, see Wigfield & Cambria, 2010). This dissertation focuses on achievement goal orientations, that is, students' reasons for engaging in academic tasks. Already the early work (e.g., Dweck, 1986; Dweck & Leggett, 1988) proposed that the goals individuals are pursuing create the framework within which they interpret and react to events and that these frameworks produce patterns of cognition, emotion, and behaviour. Achievement goal theory has proven useful for understanding students' motivation for

schoolwork. Research of the past several decades has documented that students' achievement goals and goal orientations matter because they are indeed associated with different patterns of meaning, coping, and behaviour (for reviews, see e.g., Hulleman, Schrager, Bodmann, & Harackiewicz, 2010; Molden & Dweck, 2000; Senko, Hulleman, & Harackiewicz, 2011; Urda, 1997). In a word, goal theory is one of the most prominent theoretical frameworks for studying students' achievement-related behaviour.

Achievement goal theory emerged during the late 1970s and early 1980s when several researchers (e.g., Ames, Dweck, Maehr, and Nicholls) became interested not only in the differences in the direction and strength of students' engagement in learning, but also in the *quality* of their engagement. These researchers had somewhat similar insights into the roots of students' different learning patterns, and they attributed these differences in the quality of engagement to different motivational orientations. They proposed that it is the *purpose* for engaging in academic behaviour, as construed by the individual, that affects motivation (Maehr, 1984; Nicholls, 1989). This purpose – the achievement goal – is concerned with *why* a student engages in achievement-related behaviour. Thus, the achievement goal refers to the broader approaches students take to learning rather than students' goals for specific activities.

Dweck and Nicholls were pioneers in thinking about the relationship of ability-related beliefs and goals. Dweck and her colleagues (Dweck, 1986; Dweck & Leggett, 1988; see also Molden & Dweck, 2000) argued that goal orientations are reflected in individuals' theories of the nature of intelligence or ability and that different theories about oneself lead to the adoption of different goals. Those holding an entity view believe that intelligence is fixed and cannot be developed over time, whereas those holding an incremental view believe that intelligence is malleable and can be changed over time. Thus, the theory of intelligence as a fixed, uncontrollable entity orients the individual towards a concern with demonstrating competence (i.e., performance goal orientation), whereas the theory of intelligence as malleable produces an orientation towards developing competence (i.e., mastery goal orientation).

Nicholls (1984), instead, suggested that goals set in motion an approach to success and that conceptions of ability flow from these goals. More specifically, employing the undifferentiated conception of ability (i.e., that more effort leads to more ability) would be associated with task-involvement (i.e., mastery goal orientation), and using the differentiated conception of ability (i.e., that effort and ability are inversely related) would be linked to ego-involvement (i.e., performance goal orientation). Nicholls' perspective further emphasized the role of the experienced environment in the employment of different conceptions of ability and in goal adoption, and, though he defined actualized motivation in terms of situationally induced goal states, he also argued for relatively stable individual

differences in task- and ego-related motivational tendencies. These were taken to reflect more generalized goal preferences (Nicholls, 1989). The research on achievement goals has built on these works by Dweck and Nicholls and has expanded over the past decades.

### **1.1.1 Dimensions of achievement goal orientations**

Initially, researchers distinguished three achievement goal orientations that students can have towards learning and studying: mastery, performance, and work avoidance (e.g., Ames, 1992; Dweck, 1986; Dweck & Leggett, 1988; Nicholls, 1984; Nicholls, Patashnick, & Nolen, 1985). Later research has expanded this scheme by describing additional goals related to achievement behaviour.

The central and most widely discussed distinction drawn by achievement goal theorists has been between mastery and performance goals. Regarding terminology, there is some confusion in the achievement goal orientation literature (see Hulleman et al., 2010; Kaplan & Maehr, 2007; Pintrich, 2000a). For instance, a range of terms has been used to describe mastery (labelled, for example, mastery, learning, or task goals) and performance goals (labelled, for example, performance, ego, or ability goals). In the present study, the terms “mastery” and “performance” are used. A mastery goal refers to engaging in achievement behaviour for the purpose of developing one’s competence, while a performance goal refers to engaging in achievement behaviour for the purpose of demonstrating one’s competence. More specifically, when students are oriented towards mastery goals, their purpose or goal in an achievement setting is to learn, understand, and master the skills required for doing the task or improve over past performance based on an intrapersonal evaluative standard. Learning is perceived as inherently interesting – an end in itself – and attention is focused on the task at hand. When students are oriented towards performance goals, their purpose in an achievement setting is to outperform others and appear competent based on an interpersonal standard. Attention is focused on the self and, more specifically, on one’s ability. A performance goal orientation often involves the element of a strong social comparison.

The endorsement of mastery goals has consistently been associated with numerous positive and adaptive patterns of learning, coping, and behaviour, such as metacognitive regulation, deep processing strategies, intrinsic motivation, interest, enjoyment, and persistence after failure (e.g., Dweck & Leggett, 1988; Elliot, McGregor, & Gable, 1999; Elliot & McGregor, 2001; Grant & Dweck, 2003; Harackiewicz et al., 1997, 2000; Kaplan & Maehr, 1999; Linnenbrink, 2005; Meece & Holt, 1993; Niemivirta, 2002b; Pintrich, 2000b; Senko & Harackiewicz, 2005; Turner, Thorpe, & Meyer, 1998). With respect to associations between mastery tendencies and objective academic achievement, studies

reveal both null effects (e.g., Elliot & Church, 1997; Harackiewicz et al., 2000), as well as positive relationships (e.g., Meece & Holt, 1993; Steinmayr & Spinath, 2009).

By contrast, the findings concerning performance goals have been more mixed; in some studies performance goals have been associated with maladaptive outcomes, such as shallow processing and negative affect (e.g., Dweck & Leggett, 1988; Kaplan & Maehr, 1999; Meece, Blumenfeld, & Hoyle, 1988; Nolen, 1988; Turner et al., 1998), while in others, the relationships have been neutral, or else performance goals have been shown to facilitate learning and achievement (e.g., Bouffard, Boisvert, Vezeau, & Larouche, 1995; Harackiewicz et al., 1997; Wolters, Yu, & Pintrich, 1996). In general, it has been proposed that performance goals can be appropriate in some circumstances and may lead to high achievement (for reviews, see Harackiewicz, Barron, & Elliot, 1998; Urdan, 1997). However, it is sometimes suggested that even though performance goals may be beneficial for cognitive engagement and achievement, they come at a cost (e.g., Daniels et al., 2008; Midgley, Kaplan, & Middleton, 2001).

Several researchers, most notably Elliot (Elliot & Harackiewicz, 1996; Elliot, 1999; see also Midgley et al., 1998; Skaalvik, 1997) argued that the inconsistent findings associated with performance goals may stem from failing to account for a distinction between “approach” and “avoidance” orientations within performance goals. Already the early motivation researchers (e.g., Atkinson, 1957) suggested that learners are motivated both to attain success and to avoid failure (see also Elliot, 1999). Consequently, Elliot and Harackiewicz (1996) introduced an important expansion of the conceptualization of achievement goals. Instead of treating performance goal orientation as a unitary conception, they argued that the nature and function of performance goals would be more accurately understood if they were further differentiated into separate approach and avoidance components. Accordingly, a performance-approach goal is directed at demonstrating competence, while a performance-avoidance goal is directed at avoiding the demonstration of incompetence (Elliot & Harackiewicz, 1996; see also Midgley et al., 1998; Murayama, Elliot, & Yamagata, 2011; Skaalvik, 1997).

Researchers began to disentangle the effects of the approach and avoidance components of performance orientation. The findings from these studies suggest in general that performance-approach goals are associated with various positive motivational and achievement-related outcomes, while only performance-avoidance goals are systematically linked to negative outcomes (Elliot & Church, 1997; Elliot et al., 1999; Elliot & McGregor, 2001; Pajares, Britner, & Valiante, 2000; Senko & Harackiewicz, 2005; Skaalvik, 1997; Smith, Sinclair, & Chapman, 2002). More specifically, performance-approach goals have been associated with, for example, self-regulation (Bouffard et al., 1995), emotions such as pride (Pekrun, Elliot, & Maier, 2006), grades and level of achievement (e.g., Barron &



Harackiewicz, 2001; Elliot & Church, 1997; Elliot & McGregor, 1999; Harackiewicz et al., 1998, 2000), and perceived level of value (Ng, 2006, 2009). There is debate, however, about the relative merits of performance-approach goals, because even though these goals have been related positively to some important achievement outcomes, some studies still indicate that performance-approach goals may be associated with some detrimental patterns as well, for example, anxiety, fear of failure, threat appraisals, unwillingness to cooperate with peers, and use of surface strategies (Bong, 2009; Elliot et al., 1999; Fortunato & Goldblatt, 2006; Levy, Kaplan, & Patrick, 2004; McGregor & Elliot, 2002; Ng, 2006). Performance-avoidance goals, in turn, have been consistently linked with maladaptive outcomes, for example, self-handicapping, help-seeking avoidance (Bong, 2009; Urdan, 2004), test anxiety (Elliot & McGregor, 1999; Middleton & Midgley, 1997), threat appraisals (McGregor & Elliot, 2002), lower academic efficacy (Middleton & Midgley, 1997), lower performance (Elliot & Church, 1997; Luo, Paris, Hogan, & Luo, 2011; Skaalvik, 1997), and, overall, negative feelings towards learning tasks, school, and the self (see Elliot, 1999).

Elliot and McGregor (2001) and Pintrich (2000b) proposed that also mastery goal orientation could be divided into approach and avoidance components, rather than conceived solely as reflecting an approach tendency. Mastery-avoidance orientation refers to avoiding mistakes, failures, misunderstanding, diminution of existing skills, and not mastering the task. It has been associated with surface processing, anxiety, fear of failure, worry, and emotionality (Bong, 2009; Elliot & McGregor, 2001). However, the mastery-avoidance construct has only recently begun to be included with some frequency in studies (see Hulleman et al., 2010; Madjar, Kaplan, & Weinstock, 2011). It has to date received only limited empirical support and remains yet somewhat undefined theoretically and operationally.<sup>2</sup>

Other mastery-related nuances include mastery-extrinsic goals (Niemi-virta, 2002b) and outcome goals (Grant & Dweck, 2003). The outcome goals refer to the goal of wanting to do well on a particular task (Grant & Dweck, 2003). In a similar vein, the mastery-extrinsic goals refer to the goal of wanting to do well and, further, to the tendency of relying on external criteria such as grades or explicit feedback when evaluating whether one has attained the goal of mastering a subject or learning a new thing (see Niemi-virta, 2002b, 2004a). Like mas-

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<sup>2</sup>Recently, Elliot, Murayama, and Pekrun (2011) extended the  $2 \times 2$  goal orientation model (i.e., mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance) to a  $3 \times 2$  achievement goal model encompassing six goal constructs: task-approach, task-avoidance, self-approach, self-avoidance, other-approach, and other-avoidance. In this model, competence can be defined in terms of doing well or poorly relative to what the task itself requires, relative to how one has done in the past, or relative to others. Further, competence can be valenced as either a positive (i.e., success) or a negative possibility (i.e., failure).



tery-intrinsic orientation, mastery-extrinsic orientation reflects a desire to improve oneself, but unlike mastery-intrinsic orientation, it is based on external criteria such as grades as the standard for improvement. Students with this tendency seek to master tasks, and their focus is on absolute success (i.e., getting good grades) instead of relative success (i.e., outperforming others), not necessarily due to the instrumental value of success, but rather to the fact that, from their viewpoint, good grades imply mastery and learning. It can be said that mastery-extrinsic orientation emphasizes achievement, but not competition (see also Brophy, 2005). Empirical findings suggest that the endorsement of mastery-extrinsic goals is related to some positive and adaptive patterns of coping and behaviour (e.g., commitment, effort, academic achievement) as well as to some signs of psychological distress (e.g., fear of failure) because of the strong emphasis on doing well (Niemivirta, 2002b; Tuominen, Salmela-Aro, Niemivirta, & Vuori, 2004). It seems that mastery-extrinsic orientation is more ability-centred than mastery-intrinsic orientation; similarly, Grant and Dweck (2003) concluded that outcome goals can be as much a part of a learning framework as a performance framework.

In addition to striving for mastery and performance, students may have other goals that may potentially effect their academic cognition and performance. Nicholls and his colleagues (Nicholls et al., 1985; Nicholls, 1990; Nolen, 1988) identified work avoidance as one possible goal orientation, which means that the student does not wish to engage in academic activities and is especially pleased when he or she does not have to work hard. More specifically, students pursuing a work avoidance goal avoid challenging tasks, put forth as little effort as possible, and try to get away with it – they actively avoid school-related work. This orientation has received less research attention compared to mastery and performance orientations, but as expected, avoidance orientation is associated with diverse maladaptive outcomes in relation to learning and achievement. For example, work avoidance orientation has been positively related to surface processing, anxiety, and a tendency to give up in demanding learning situations, as well as negatively related to deep processing, interest, value, enjoyment, and academic achievement (Duda & Nicholls, 1992; Harackiewicz et al., 1997, 2000; Kolić-Vehovec, Rončević, & Bajšanski, 2008; Meece & Miller, 2001; Ng, 2009; Niemivirta, 2002b; Nolen, 1988; Seifert & O'Keefe, 2001; Skaalvik, 1997).

As can be seen from the review of literature above, some disparities exist as to which goals and goal orientations truly reflect *achievement*-related strivings. For example, the perspective grounding on competence-related qualities assigned to goals (e.g., Elliot) does not incorporate work avoidance goals into the classification because such goals do not fit the classification scheme (i.e., they do not reflect competence-related strivings and cannot be classified according to valence and definition of success). On the other hand, the perspective that is more linked

with the achievement context (e.g., Nicholls, Ames) recognizes that such avoidance tendencies are present in the authentic educational setting and thus reflect the individual's attempts to cope with the achievement-related demands inherent in the classroom (Thorkildsen & Nicholls, 1998).

Another disparity in the literature concerns the adaptiveness of different achievement goals and goal orientations. Initially, goal theory researchers widely agreed that mastery goals are more productive and adaptive than performance goals. This simple generalization broke down as it became clear that goal theory would have to include the approach-avoidance distinction in addition to the mastery-performance distinction. Consequently, there is a consensus that mastery goals are linked with a positive set of processes and outcomes, but there is debate about the relative merits of performance-approach goals and whether these goals should be considered productive, at least in some circumstances (see e.g., Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Kaplan & Middleton, 2002; Midgley et al., 2001; Senko et al., 2011). There is agreement about the maladaptiveness of endorsing avoidance goals in comparison to striving for approach goals. It should be noted that in addition to the different variations of mastery, performance, and avoidance goal orientations, the achievement goal theory has expanded to include other goals, for example, social goals (e.g., Dowson & McInerney, 2003; Urdan & Maehr, 1995; Wentzel, 1999). Although important, these constructs are beyond the scope of the current review and work.

### **1.1.2 Patterns of achievement goal orientations**

Most of the earlier work on achievement goals focused on single goals and their effects on various aspects of students' motivation and academic performance. Initially, mastery and performance goals were thought to represent opposing motives (Dweck, 1986; Nicholls, 1984), but as empirical work found measures of mastery and performance goals to be either unrelated or positively related, the idea that students can and do pursue multiple goals simultaneously and to varying degrees attracted support (e.g., Barron & Harackiewicz, 2001; Harackiewicz, Barron, Pintrich, et al., 2002; Meece & Holt, 1993; Niemivirta, 1998, 2002b; Pintrich, 2000b). At present, the multiple goals perspective is widely accepted among goal theorists; it has prompted numerous studies exploring multiple goals and their relations to various outcomes. The endorsement of multiple goals has also been supported by qualitative studies in which students expressed multiple purposes or goals for engaging in schoolwork, and these goals were not pursued in isolation (e.g., Dowson & McInerney, 2003).

Empirically, several analytical techniques have been used to account for the multiple goals perspective. Some researchers have adopted a variable-centred approach and investigated the interactive effects of single achievement goals

with multiple regressions (e.g., Harackiewicz et al., 1997, 2000; Kaplan & Midgley, 1997), whereas other researchers have adopted a more person-centred approach and used, for example, median-split procedures, cluster analysis, or model-based latent profile analysis and, consequently, investigated differences in outcome variables for subgroups of students with distinct achievement goal profiles.

Studies examining the relationship of multiple goals with other variables using multiple regression have shown that mastery and performance goals are independently beneficial for different academic outcomes (e.g., Barron & Harackiewicz, 2001; Elliot & Church, 1997; Middleton & Midgley, 1997). In general, these studies have suggested that students adopting mastery goals are more interested in the class, students adopting performance-approach goals achieve higher levels of performance, and students adopting work avoidance goals perform more poorly (Harackiewicz et al., 1997, 2000). Based on these findings, the conclusion was that both mastery and performance goals have positive and complementary effects on different measures of academic success and that the student who adopts both mastery and performance goals has an advantage in the context of college education (Harackiewicz et al., 1997). These studies included college students in competitive classes, so performance goals might be optimal and explicitly valued in a given context. The use of regression models becomes increasingly complicated as the conceptualization of achievement goal orientations becomes more complex.

Studies examining students' achievement goal orientation profiles and using more person-centred analytical methods started to appear in the 1990s, and their number has increased in recent years. In Appendix A, these studies are summarized and presented in chronological order. My review of the literature revealed that the use of varying conceptualizations, different analytical methods, as well as participants of different ages and from various educational contexts make the interpretation and generalization of the results difficult. However, some generalizations can be made on the basis of this review. In early research on multiple goals, median-split procedures were common, but some weaknesses have been acknowledged in these procedures (see Pastor, Barron, Miller, & Davis, 2007). Cluster analysis is already a more sophisticated technique, although this procedure is prone to bias because of the problems in determining the number of clusters (see Pastor et al., 2007). More recent studies have used latent class clustering and latent profile analysis to examine achievement goal orientation profiles. These model-based techniques have several advantages over the traditional methods (see Chapter 2.6.3.), but still not that many studies have applied these methods.

Existing studies have not led to a clear picture about how many achievement goal orientation profiles need to be distinguished. In most cases, the number of

goal orientation groups has varied between three and six, with the vast majority of studies including three or four groups (see Appendix A). As long as goal theorists differentiated only between mastery and performance goals, four goal profiles were usually taken into account. Later, when the trichotomous or the  $2 \times 2$  achievement goal models were applied, the complexity in the possible goal combinations increased. Even though there is no consensus on the number and composition of achievement goal orientation profiles or groups, it appears that the following achievement goal orientation profiles are most commonly identified: a predominantly mastery goal orientation profile (e.g., learning-oriented students, Niemivirta, 2002b; Tapola & Niemivirta, 2008; Turner et al., 1998; mastery-oriented students, Roeser, Strobel, & Quihuis, 2002; Seifert, 1996), a predominantly performance goal orientation profile (e.g., low-mastery/high-performance students, Pintrich, 2000b; performance-oriented students, Niemivirta, 1998; Tapola & Niemivirta, 2008; a predominance of performance goals group, Valle et al., 2003; fear-based achievers, Fortunato & Goldblatt, 2006), a combined mastery and performance-approach goal orientation profile (e.g., multiple goals cluster, Daniels et al., 2008; success-oriented students, Turner et al., 1998; an approach group, Luo et al., 2011; balanced-goal learners, Ng, 2006), and some kind of low achievement goal orientation profile (e.g., low-mastery/low-performance group, Bouffard et al., 1995; Pintrich, 2000b; low-motivation cluster, Daniels et al., 2008; low cluster, Liu, Wang, Tan, Ee, & Koh, 2009; uncommitted students, Turner et al., 1998; non-committed students, Tuominen et al., 2004). Additionally, in studies including a work avoidance orientation, a work-avoidant profile has usually been identified (e.g., avoidance-oriented students, Niemivirta, 2002b; Tapola & Niemivirta, 2008; Tuominen et al., 2004; Turner et al., 1998; Veermans & Tapola, 2004; work-avoidance group, Brdar, Rijavec, & Loncaric, 2006; Kolić-Vehovec et al., 2008; work-avoidant cluster, Ng, 2009).

Some debate also exists about which combination of goals or goal orientations leads to the most adaptive outcomes. Studies have mainly demonstrated support for the merits of mastery-only (i.e., a dominant mastery goal orientation) and multiple-goal (i.e., a combination of mastery and performance-approach goals) profiles. It is widely accepted that students endorsing primarily mastery goals show a more adaptive pattern of motivation and achievement than those weakly oriented towards mastery (e.g., Meece & Holt, 1993; Pintrich & Garcia, 1991; Pintrich, 2000b; Seifert, 1995). With respect to the simultaneous emphasis on both mastery and performance tendencies, the findings are threefold. First, some studies show that students inclined towards both mastery and performance use more cognitive strategies and obtain better academic performance than high-mastery/low-performance students (Bouffard et al., 1995; Harackiewicz, Barron, Tauer, & Elliot, 2002; Luo et al., 2011). The idea behind

this view is that if there are positive main effects of mastery and performance-approach goals, then it is likely that having high levels of both goals would be most adaptive. Second, other studies have demonstrated that students endorsing predominantly mastery goals display more adaptive pattern of motivation, achievement, and behaviour than high-mastery/high-performance students (Levy-Tossman, Kaplan, & Assor, 2007; Meece & Holt, 1993; Ng, 2006; Pintrich & Garcia, 1991; Roeser et al., 2002; Turner et al., 1998). This view suggests that the overall level of engagement fostered by a mastery goal would be less when students simultaneously endorse a performance goal and that strivings for performance and success might, even in the presence of striving for mastery, entail some unfavourable outcomes, such as anxiety or vulnerability to emotional distress (Daniels et al., 2008; Luo et al., 2011; Ng, 2006). Third, some studies document that students endorsing predominantly mastery goals and students emphasizing both mastery and performance tendencies are more or less equal in terms of functionality (Brdar et al., 2006; Kolić-Vehovec et al., 2008; Pintrich, 2000b; Seifert, 1995; Valle et al., 2003).

The profile in which performance goals are mainly emphasized, especially if performance-avoidance goals are high, has some negative effects on motivational and affective outcomes (Fortunato & Goldblatt, 2006; Luo et al., 2011; Niemivirta, 1998; Pintrich, 2000b; Seifert, 1995; Tapola & Niemivirta, 2008; Valle et al., 2003). Consequently, the predominantly performance goal profile is commonly regarded as less adaptive than mastery-only or multiple-goal profiles. However, holding a dominant performance-approach goal orientation is associated with more adaptive outcomes than not emphasizing any specific achievement goal orientation. Accordingly, research shows that students who are only slightly preoccupied with both mastery and performance (i.e., low motivation students) have less adaptive profile in terms of motivation and learning (e.g., Bouffard et al., 1995; Daniels et al., 2008; Liu et al., 2009). When work avoidance orientation is taken into consideration, students emphasizing mainly avoidance tendencies manifest the most negative outcomes in terms of motivation and achievement (e.g., Kolić-Vehovec et al., 2008; Ng, 2009; Tuominen et al., 2004).

The number and types of goal orientation profiles extracted naturally depend on the types of achievement goals taken into consideration. Consequently, the fact that different variables have been used for forming the goal profiles and also that different statistical methods have been used to form the clusters further complicates the interpretation and generalizability of the results of the existing studies. However, together these studies indicate that as several goals can interact in complementary ways to jointly regulate achievement behaviour, it is critical to consider patterns of motivation.

## 1.2 Stability and Change in Achievement Goal Orientations

Broadly, researchers have discussed two kinds of factors that can affect the development of achievement goal orientations. One is a personal factor, such as beliefs about intelligence and ability. The other is a contextual factor, that is, how different kinds of instructional contexts can affect students' achievement goal orientations. Both Dweck and Nicholls acknowledged that which specific goals students pursue in a given situation depends on the interaction of dispositional tendencies and situational cues, although their emphases on these two factors differed. They predicted that performance goals should become more evident as children advance through school. According to Dweck (1999), this is because children develop a more entity view of intelligence as they grow older, whereas according to Nicholls (1990), this is in part because of developmental changes in children's conceptions of ability and, in part, because of systematic changes in the school context. In turn, according to Ames (1992), achievement goal orientations are more a product of the context than the person and, thus, may vary widely in different situations. Elliot (1999) took an explicit step towards a more situation- and task-specific approach by defining an achievement goal as a specific type of goal in which the focal end state or result is competence. When viewed from a hierarchical standpoint (Elliot, 2006), the achievement goals are posited to emerge from more general motives (e.g., the need for achievement and fear of failure), self-conceptions and theories (e.g., entity and incremental theories of ability), and environmental emphases (e.g., classroom goal structures).

The different conceptualizations of achievement goals naturally have an influence on the investigation and interpretation of goal stability and change. On the one hand, when focusing on more enduring achievement goal orientations, the issue of stability is relatively self-evident. As it is the function of generalized tendencies to provide continuity and effortless information processing (see Bargh & Barndollar, 1996, for a discussion on automotives and chronic goals), relative stability in students' achievement goal orientations is to be expected. On the other hand, when looking at more situation- and task-specific goals, the role and meaning of stability are more ambiguous. In this case, stability is not an intrinsic property of the object (the *task-specific* goal itself), but rather an indirect function of either the situation (e.g., similar courses or classroom environments result in similar goals within individuals) or some other individual difference factors (e.g., motives that induce the adoption of certain goals). Probably owing to these conceptual ambiguities, surprisingly few empirical studies have specifically considered the longitudinal stability of either goals or goal orientations (for exceptions, see Fryer & Elliot, 2007; Muis & Edwards, 2009), and when stability has been assessed, in most cases it has been more of a by-product



rather than an end in itself. The existing studies that somehow address goal stability and change show varying results (see Appendix B, for a summary of such studies).

On the one hand, studies have demonstrated moderate to high stability (i.e., stability indexed by a correlation between two time points) in students' achievement goals or goal orientations within school years (e.g., Bong, 2005; Elliot & McGregor, 2001; Fryer & Elliot, 2007; Meece & Miller, 1999; Muis & Edwards, 2009; Nolen & Haladyna, 1990; Seifert, 1996; Senko & Harackiewicz, 2005; VandeWalle, 1997; Wolters et al., 1996), between school years (e.g., Meece & Miller, 2001; Middleton, Kaplan, & Midgley, 2004; Roeser, Midgley, & Urdan, 1996), and even moderate stability in goal orientations across educational transitions (e.g., E. M. Anderman & Midgley, 1997; L. H. Anderman & Anderman, 1999; Urdan & Midgley, 2003). However, exactly what underlies the stability found in studies that follow different theoretical logic remains somewhat vague.

On the other hand, even though there seems to be a reasonable degree of stability in students' achievement goals over time, the presence of moderate to high rank-order stability does not exclude the possibility of mean level changes, even within the same samples. Indeed, research has also suggested that achievement goal endorsement varies over time. Most studies suggest that during elementary school children are more mastery-oriented (E. M. Anderman & Midgley, 1997; L. H. Anderman & Anderman, 1999), but that, after elementary school, students become less oriented towards mastery goals (E. M. Anderman & Midgley, 1997; L. H. Anderman & Anderman, 1999; Bråten & Olaussen, 2005; Chouinard & Roy, 2008; Fryer & Elliot, 2007; Meece & Miller, 1999, 2001; Shim, Ryan, & Anderson, 2008; Young, 1997). This is in line with arguments suggesting that during adolescence, there are advances in cognitive development that are likely to result in changes in how adolescents perceive their school-related abilities (Archambault, Eccles, & Vida, 2010; Bong, 2009). It has been suggested that adolescents' achievement standards are likely to change from intra-individual to more normative, encouraging the adoption of performance goals (Bong, 2009; Nicholls, 1984). However, few studies document an increase in students' mastery goals over time (Bong, 2005; Freeman & Anderman, 2005) or show that students' mastery goals remain largely stable within school years (Bong, 2005; Seifert, 1996; Smith et al., 2002).

Regarding performance goals, the results are diverse and suggest that over time these goals may decrease (Meece & Miller, 1999, 2001; Seifert, 1996; Young, 1997), remain stable (E. M. Anderman & Midgley, 1997; Young, 1997), or increase (L. H. Anderman & Anderman, 1999). When performance orientation has been differentiated into separate approach and avoidance components, a performance-approach orientation has been found either to decrease (Shim et al., 2008; Smith et al., 2002) or remain stable (Bong, 2005; Fryer & Elliot, 2007),

while a performance-avoidance orientation has found to decrease (Shim et al., 2008) or increase (Fryer & Elliot, 2007; Smith et al., 2002). Less is known about the developmental shifts in work avoidance goals, but there is some evidence to suggest that the endorsement of these goals remains moderately stable over time (Chouinard & Roy, 2008).

A change in school context may contribute to a change in students' achievement goal orientations (E. M. Anderman & Midgley, 1997; E. M. Anderman et al., 1999); however, only a few studies have examined the development of goal orientations across educational transitions. They suggest that while the endorsement of achievement goals stays rather stable, it also varies to some degree. Mastery goals seem to decrease, and performance goals seem to increase or remain stable across the transition from elementary to middle school (E. M. Anderman & Midgley, 1997; L. H. Anderman & Anderman, 1999; Urdan & Midgley, 2003). Relying on cross-sectional data of children at nine different grade levels from elementary and middle schools, Bong (2009) concluded that the younger students in grades 1–4 endorsed a mastery-approach goal most strongly, while the older students in grades 5–9 pursued a performance-approach goal most strongly. In another study (Shim et al., 2008), mastery, performance-approach, and performance-avoidance goals all showed a general decline during the transition to middle school, but the major source of the overall decline was within a single year, not between years, which suggests that moving into a new, larger school environment does not necessarily lead to immediate, dramatic shifts in goals. Nevertheless, schools can make a difference. It has been demonstrated that students who moved into a school that placed greater emphasis on competition and ability differences exhibited higher mean levels of personal performance goals after the transition, whereas students who moved into a school that used more task-focused instructional practices exhibited fewer negative shifts in achievement goal orientations after the transition (E. M. Anderman et al., 1999). To my knowledge, there is no study examining the developmental shifts in work avoidance goals during educational transitions.

As for the development of motivation across educational transitions more broadly, studies have revealed that transitions are a risk factor for academic motivation as they are often associated with, for example, decreased academic value, interest, and school engagement, lower academic achievement, and diminished feelings of competence (Isakson & Jarvis, 1999; Roeser et al., 1999; Rudolph, Lambert, Clark, & Kurlakowsky, 2001; Wang & Eccles, 2012; Wigfield et al., 2006). It has been suggested that the undermining of motivation is most pronounced right after a transition and tends to continue thereafter (Wigfield & Eccles, 2000). According to the stage-environment fit theory (Eccles & Midgley, 1989), this is because many of the changes associated with educational transitions are at odds with the developmental needs of adolescents (e.g., increased



emphasis on grades and competition, decline in adolescents' perception of emotional support from their teachers, as well as in the adolescents' sense of belonging in their classrooms). If schools do not provide developmentally appropriate educational environments for adolescents, then they are not offering the kind of social context that continues to motivate students' interest and engagement, and, consequently, negative developmental changes may result.

Only a few studies have gone beyond examining the stability of single achievement goal orientations and, instead, accounted for a multiple goals perspective and investigated the qualitative shifts in motivational profiles. Thus, we do not know much about the stability and change in achievement goal orientation profiles even though, naturally, there might also be change in the relative importance of different achievement goal orientations. It has been demonstrated that the investigation of overall changes might mask important individual differences and that different methodologies might yield slightly different interpretations of the data (Bråten & Olaussen, 2005; Seifert, 1996). For example, Bråten and Olaussen (2005) showed that despite overall decreases in adaptive motivation across the academic year, many participants were able to maintain relatively high levels of motivation, some developed more adaptive motivation over time, while some experienced a decline in their enthusiasm and engagement. Veermans and Tapola (2004) investigated achievement goal orientation profiles among primary school students during four school years and found that there were most stable cases over time in the learning orientation group.

In sum, the results concerning goal stability and change are diverse; achievement goal endorsement seems to be stable to some degree, but it also seems to change or vary over time. A straightforward interpretation of the findings is rather difficult because of the several sources of conceptual and empirical variation found in the research (see also Hulleman et al., 2010; Kaplan & Maehr, 2007). In prior literature, researchers often used constructs of mastery and performance goal orientations without separating the approach and avoidance components, but in current literature, researchers typically conceptualize achievement goals within either a trichotomous (i.e., mastery, performance-approach, and performance-avoidance) or a  $2 \times 2$  framework (i.e., mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance). Some achievement goal measures focus on specific learning tasks (i.e., one particular learning assignment) and some on studying in general, and sometimes the correspondence between how the goals are conceptualized and how they are operationalized is deficient. In addition to different conceptualizations and operationalizations, the educational contexts have varied and the intervals between the measurement points have differed considerably in different studies, ranging from a couple of weeks to several years. And, finally, the age of the participants has varied across studies, ranging from elementary school stu-

dents to university students. All these differences and ambiguities are likely to introduce variability in the results on goal stability. Also, virtually all studies have deployed a variable-centred approach, which might mask important changes in patterns of achievement goal orientations among subgroups of individuals. Accordingly, there is a lack of research examining the individual development of achievement goal orientations, especially across educational transitions.

### **1.3 Achievement Goal Orientations and Well-Being**

As stated earlier in Chapter 1.1.1, mastery tendencies are related to various adaptive learning outcomes, while the emphasis on performance-related goals and outcomes might also entail some negative concomitants, and avoidance tendencies are systematically related to many negative educational outcomes. Although achievement goal orientations have undergone extensive research and their relationships to a variety of outcomes relevant to learning and achievement have been explored, the links between student motivation and well-being are less thoroughly studied. Next, I will discuss how different achievement goal orientations are associated with socio-emotional functioning and well-being.

Earlier, Dweck and her colleagues (Dweck, 1986; Dweck & Leggett, 1988) suggested that the endorsement of certain goals is likely to be associated with different patterns of coping and emotion. They found that students who adopted performance goals tended to manifest a helpless pattern of responses when they encountered failure. These students were characterized by disengagement from the task, negative self-evaluations, and negative affect. Mastery-oriented students, in turn, pursued learning goals and were characterized by engagement with the task, optimistic orientation, and positive affect (see also Boekaerts, 1993).

Also Lehtinen and his colleagues (1995) emphasized that, in addition to cognitive challenges, the student is expected to cope with complex social and emotional challenges in typical learning and performance situations. They proposed a model describing three categories of motivational orientations with corresponding sets of task-oriented, ego-defensive, and social dependence types of coping strategies. For example, students who have a generalized motivational disposition towards task orientation usually appraise the task as intelligible and achievable, which is likely to lead to high expectations of success, positive emotions and ultimately to task-approaching behaviours. On the other hand, some students are likely to be sensitized to task-difficulty cues, which might lead to threat of failure, low expectations of success, the rise of inhibitory emotional state, and ego-oriented coping strategies. A third group of students relies on social-dependence coping. They seek help and approval, have rather high expectations of success and low inhibiting emotions, but are not prepared to proceed

independently with a task. It is assumed that these motivational and socio-emotional dispositions have developed differently in different students due to their individual learning histories and that they are then continuously reproduced and reinforced in teaching interactions (Lehtinen et al., 1995).

In a similar vein, later research has consistently shown that students' focus on mastery and learning is associated with various positive and adaptive patterns of coping and affect. For example, mastery goal orientation has been linked with experiencing pleasant emotions (e.g., enjoyment of learning, hope, pride, and positive affect) and being less likely to experience debilitating emotions (e.g., boredom, anger, and negative affect) (Daniels et al., 2008, 2009; Kaplan & Maehr, 1999; Linnenbrink, 2005; Pekrun et al., 2006; Roeser et al., 2002; Sideridis, 2005; Turner et al., 1998), and displaying, on the one hand, a higher level of self-esteem (Dykman, 1998; Sideridis, 2005; Skaalvik, 1997; Tapola & Niemivirta, 2008) and, on the other hand, lower levels of depressive symptoms (Dykman, 1998; Sideridis, 2005) and anxiety (Daniels et al., 2008; Skaalvik, 1997).

Again, the results concerning performance goal orientation are less consistent. Some studies suggest that endorsing performance goals is associated with a lower level of psychological well-being when compared to pursuing mastery goals (Daniels et al., 2008; Dykman, 1998; Kaplan & Maehr, 1999). On some occasions, performance-approach goals have been associated with test anxiety (Daniels et al., 2008, 2009; Linnenbrink, 2005; Middleton & Midgley, 1997), negative affect (Kaplan & Maehr, 1999; Smith et al., 2002; Turner et al., 1998), and stress (Smith et al., 2002). Nevertheless, other studies suggest that performance-approach goals are not that maladaptive with respect to emotional well-being; they have been associated positively with feelings of pride and positive affect (Linnenbrink, 2005; Pekrun et al., 2006) and negatively with anxiety and depression (Sideridis, 2005), and they have been unrelated to negative affect (Linnenbrink, 2005). Performance-avoidance goals have been systematically linked with maladaptive outcomes, such as hopelessness and shame (Pekrun et al., 2006), anxiety (Bong, 2009; Middleton & Midgley, 1997; Sideridis, 2005; Skaalvik, 1997), stress (Smith et al., 2002), negative affect (Luo et al., 2011), lower self-esteem (Sideridis, 2005, 2007; Skaalvik, 1997), depression (Sideridis, 2005, 2007), feelings of sadness, and internalizing and externalizing problems (Roeser et al., 2002). These findings reveal that even though endorsing performance goals may be beneficial for cognitive engagement and achievement, they may come at a cost. Work avoidance orientation has been studied less, but it has been consistently associated with passivity and other negative outcomes, such as lack of meaning and a sense of inadequacy at school (Seifert & O'Keefe, 2001), anxiety (Ng, 2009; Skaalvik, 1997), boredom (Duda & Nicholls, 1992), emotional

reactions (Brdar et al., 2006), and lower self-esteem (Skaalvik, 1997; Tapola & Niemivirta, 2008).

Studies employing a multiple goals perspective and more person-centred methods tell a similar story about the associations between students' achievement goal orientations and well-being, but they provide supplementary information on the outcomes of adopting multiple goals simultaneously. Again, there is strong support for the merits of mastery goal orientation; students focusing primarily on learning and understanding have been shown to exhibit an adaptive pattern of adjustment and affect. For example, studies suggest that mastery-oriented students report positive self-perceptions (Niemivirta, 1998; Tapola & Niemivirta, 2008), high engagement (Haydel & Roeser, 2002), high positive affect (Fortunato & Goldblatt, 2006), high enjoyment (Daniels et al., 2008), low negative affect (Turner et al., 1998), and low anxiety (Daniels et al., 2008; Pintrich & Garcia, 1991). Simultaneously emphasizing mastery and performance goals has been related to some favourable outcomes, such as positive affect, task value, and enjoyment (Daniels et al., 2008; Pintrich, 2000b), but also to some unfavourable outcomes. For example, students who pursue performance goals, even in combination with mastery goals, have been shown to be more susceptible to anxiety than those who focus primarily on mastery goals (Daniels et al., 2008; Ng, 2006; Tanaka, 2007).

Further, studies have documented that students inclined mainly towards outperforming others report lower self-perceptions (Niemivirta, 1998, 2002b; Pintrich, 2000b), lower task value (Pintrich, 2000b), higher negative affect (Fortunato & Goldblatt, 2006), higher anxiety (Ng, 2009), higher boredom (Daniels et al., 2008), and more internalizing and externalizing problems (Roeser et al., 2002) compared to their mastery-oriented peers. Finally, students characterized by both low mastery and low performance goals have been shown to report relatively low self-efficacy, low task value, low enjoyment, and high levels of boredom (Daniels et al., 2008; Pintrich & Garcia, 1991; Pintrich, 2000b), and students aiming mainly at work avoidance have been shown to report relatively high negative affect, high test anxiety, low engagement, and low valuing of studying (Kolić-Vehovec et al., 2008; Meece & Holt, 1993; Ng, 2009; Niemivirta, 2002b).

In broad terms, the research tends to suggest that achievement goals related to growth and learning are linked with positive well-being and adjustment, while more performance-focused goals are associated with some adjustment problems and lower self-evaluations. Performance goals may undermine well-being unless paired with mastery goals and, in some instances, even in the presence of striving for mastery. Goals related to avoiding achievement situations are systematically linked with passivity, adjustment problems, and many other unfavourable outcomes. These findings highlight the importance and fruitfulness of integrat-

ing motivational and emotional constructs in the study of student learning and achievement (see also Lehtinen et al., 1995; Pekrun et al., 2006).

## **1.4 Summary: The Perspective Adopted**

Achievement goal theory serves as the main theoretical framework for the present study. It is used as the lens through which student motivation is viewed. Achievement goal theory targets the reasons why students engage in schoolwork by scrutinizing the goals for which they are striving in achievement situations. In contrast to focusing on the quantity of motivation, the role of qualitative differences in motivation is emphasized. Based on the Introduction above, it has become evident that research on achievement goals and goal orientations has suffered from divergent conceptualizations and varying operationalizations. These variances have led to mixed results and different views, for example, on the dimensions, patterns, functionality, and stability and change of achievement goal orientations. Next, I will provide a summary of the gaps in prior research, the contribution of the present study, and the conceptual and empirical perspective on which the present dissertation is founded.

### **1.4.1 Gaps in prior research and the contribution of the present study**

Despite the extensive research on achievement goals, there are several limitations to the existing research, which the present study aims to complement. First, there are varying conceptualizations and empirical operationalizations of achievement goal orientations. More specifically, one line of research considers the construct of achievement goals in terms of the situation- and task-specific goals that students adopt in achievement situations, while another line of research considers the same construct in terms of the general tendencies that influence goal adoption. Whichever conceptualization is followed, it should be in line with the operationalization of goals or goal orientations; however, there have been occasional disparities between these two. The present study has specifically endeavoured to have coherent conceptualization and operationalization of achievement goal orientations (see Chapter 1.4.2).

Second, even though studies following the multiple goals perspective and employing person-centred methods have become more general during approximately the past ten years (see Appendix A), there are still some gaps, limitations, and underemphasized issues in this research, and more studies are needed in order to shed more light on the issue of the prevalence and functionality of multiple goal patterns. If achievement goal orientation is conceptualized as consisting of several types or dimensions that all students share, but which vary in terms of individual importance, it is essential to focus on the relative emphasis of

these different motivational tendencies. Therefore, and in accordance with the multiple goals perspective, in this dissertation I will focus on achievement goal orientation configurations rather than on individual orientations. There is a lack of studies employing various sets of achievement goal orientations as most studies have used three achievement goal orientation dimensions (i.e., either mastery, performance-approach, and performance-avoidance or mastery, performance, and work avoidance). In the present study, five types of orientations and their simultaneous emphases are considered. The consideration of multiple goals and the classification of students into homogenous groups with similar profiles across the various dimensions of achievement goal orientation is possible by means of a person-centred analytical approach (See Chapter 2.5). In this approach, the focus is on relationships among individuals, not on relationships among variables, as is the case in variable-centred methods (Muthén & Muthén, 2000; for discussion of person-centred approach, see also Niemivirta, 2002a; Roeser et al., 2002, 2008; Roeser & Peck, 2003). The study design utilized in the present dissertation was tested in a pilot study (Tuominen et al., 2004) employing a similar theoretical and methodological approach, but a different sample of students. Specifically, the pilot study examined the motivational profiles of ninth-grade students ( $N = 561$ ) in two medium-sized cities in Finland (other than the one in this study) with identical achievement goal orientation measures and similar data analyses as in the present study.

Third, the issue of stability and change in achievement goal orientations over time is somewhat overlooked in the field. Despite the fact that information on goal stability indexed by a correlation between two time points can be discerned from a number of studies, the vast majority of these studies have not explicitly addressed the issue of goal stability and change. Also, the results concerning goal stability are inconsistent. In particular, there is a lack of knowledge on the development of achievement goal orientations during educational transitions. To shed more light on the issue of goal stability and change, Studies II and III used a longitudinal design and examined the development of achievement goal orientations both preceding educational transitions and during an educational transition. Studies examining goal stability have used different time intervals, ranging from a few weeks to several years. In the present study, the objective was to address thoroughly the issue of stability and change in achievement goal orientations, and, consequently, it was investigated within one school year (Substudy IIa; measurement period four months), between school years (Substudy IIb; measurement period twelve months), and across an educational transition (Study III; measurement period twelve months). More specifically, Studies II and III utilized a similar theoretical approach and methodology as well as some of the same participants in order, first, to examine the stability of achievement goal orientations preceding educational transitions (Study II) and, second, to

address the possible moderating role of an educational transition in the stability of achievement goal orientations (Study III).

Fourth, it is a major limitation that virtually all studies addressing goal stability have deployed a variable-centred approach and hence, have focused on stability and change in individual goals or goal orientations. There is a lack of studies addressing the question of *individual development* of achievement goal orientations over time. It has been suggested that only some students experience a decline in motivation during adolescent years, while some students might even display positive changes in motivation and school engagement over time (Bråten & Olaussen, 2005; Ratelle et al., 2004; Roeser et al., 1999). It is crucial to understand the nature of individual differences in the development of motivation, and, accordingly, a longitudinal person-centred approach was utilized in Studies II and III. With this kind of approach, it is possible to examine the developmental change in motivation as a function of multiple goals, that is, with regard to shifts in a person's goal configurations. Studies exploring stability and change in achievement goal orientation profiles are scarce (see, however, Veermans & Tapola, 2004). To summarize, the present study examines the stability of both achievement goal orientations and goal orientation profiles, both preceding educational transitions and during an educational transition.

Fifth, considering the centrality of school in the lives of adolescents and the importance of school and academic achievement to adolescents' self-evaluations and socio-emotional functioning (see e.g., Eccles & Roeser, 2009, 2011), still further studies are needed to clarify the relation between student motivation and well-being. As suggested by Roeser, Eccles, and Strobel (1998; see also Roeser et al., 1999), adolescents' academic and emotional functioning are somewhat interdependent, and these two domains need to be combined in research in order to address the functioning of the whole person. Many other studies have also demonstrated the usefulness of combining cognitive and emotional aspects in investigating students' learning (e.g., Heikkilä, Niemivirta, Nieminen, & Lonka, 2011; Kaplan & Maehr, 1999; Lehtinen et al., 1995; Pekrun et al., 2006; Pintrich, 2000b). Therefore, we linked the study of academic and emotional functioning and attempted to obtain a picture of the complex interplay between motivation and well-being in changing educational contexts. Prior research addressing achievement goal orientations and well-being has predominantly used indices of well-being that are not directly linked to a specific context, while academic well-being has received less attention (see, however, Pekrun et al., 2006, for a study on discrete achievement emotions). Consequently, we also included context-specific indices of well-being that are directly linked with school and studying. Prior studies utilizing a person-centred approach have shown that adolescents display different patterns of academic and socio-emotional functioning and that adjustment problems in school appear to cluster in a minority of adolescents



(e.g., Archambault, Janosz, Morizot, & Pagani, 2009; Roeser et al., 2002, 2008; Roeser & Peck, 2003). Against this background, one aim of the present study was to investigate what kinds of subgroups of students with different achievement goal orientation profiles can be extracted and which profiles are most adaptive with respect to academic and socio-emotional functioning.

The examination of associations between motivation and well-being and the parallel changes in them during an educational transition is especially important, as parallel changes occur in both the individual and the context during a transition (see Eccles & Roeser, 2009). The fit between the person (the student) and the environment (the school) is a crucial factor affecting a student's school adjustment and well-being during a transition. It has been suggested that negative developmental fit may lead to alienation from school and cynicism, for example, but, when the context fits students' interests, goals, and psychological needs, the end result should be high engagement, adaptive motivation, and well-being (Eccles & Midgley, 1989; Salmela-Aro, Kiuru, & Nurmi, 2008).

Finally, many studies that have investigated achievement goal orientations and their longitudinal changes have focused either on younger (e.g., elementary and middle school) students or older (i.e., university) students. Thus, it is important to investigate students' achievement goal orientations in different educational settings and among students of varying ages.

#### **1.4.2 Conceptualization of achievement goal orientations**

The different approaches in the achievement goal literature (see e.g., Hulleman et al., 2010; Kaplan & Maehr, 2007; Urdan, 1997) have led to heterogeneous research in terms of conceptualizations of goals and the underlying theoretical and meta-theoretical assumptions that guide empirical investigations. Basically, the research seems to follow two conceptualizations: one that looks at the dispositions (i.e., achievement goal orientations) that are likely to predict goal choices, and one that places more emphasis on the situation- and task-specific nature of particular goals. Following the logic of Niemivirta's work (see Niemivirta, 2002b, 2004a), the conceptualization applied in the present dissertation defines achievement goal orientations as a disposition reflecting students' generalized beliefs and tendencies to select certain goals and favour certain outcomes. This view is similar to that of Dweck (1986, 1992), which differentiates the specific outcomes individuals pursue in particular settings from the "more superordinate classes of goals that are behind the particular outcomes individuals strive for" (Dweck, 1992, p. 165).

On the other hand, our view is based on the works of Nicholls and his colleagues (e.g., Nicholls, 1989), because Nicholls explicitly acknowledged the dispositional achievement goal orientations. Both Dweck and Nicholls considered



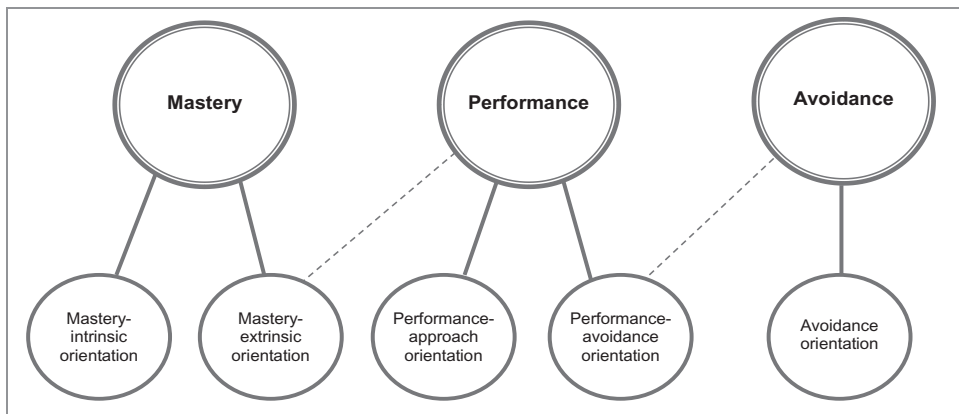
achievement goal orientations as domain-general in the sense that they influence achievement-related behaviour in different situations and tasks in the same way. In our view, specific goals represent objects, events, states, or experiences a person seeks to attain, whereas achievement goal orientations refer to a disposition that contributes to the individual's propensity to select and favour certain types of goals and outcomes (see Niemivirta, 2002b, 2004a). In the long term, individuals learn to value the consequences of certain outcomes, for example, through need satisfaction, and therefore they begin to favour goals that help to attain those outcomes. Naturally, situational cues can also alter the salience of these preferences and the way people respond to those cues. Dweck and Leggett (1988, p. 269) suggested that "person-situation interactions are best understood in probabilistic terms, with the situation potentially altering the probability that a predisposing tendency will prevail"; this view is in line with ours.

Kaplan and Maehr (2007) view achievement goal orientations as interpretative frameworks or schemas for filtering information, appraising a situation, creating meaning, and guiding action. These dynamic processes of meaning construction involve the situation, the self, and the regulation of attention, emotion, and action (Kaplan & Maehr, 2002). Most existing research can be said to be based on one of two perspectives on the nature of achievement goal orientations, namely goal orientations emerging from *situation-schemas* or achievement-related *self-schemas* (Kaplan & Maehr, 2007). Our conceptualization is more in line with the latter perspective, which assumes that "individuals hold a certain cognitive-affective concept about themselves, which is activated in a particular situation, gives rise to self-related goal orientations and manifests itself in related thoughts, feelings and behaviour" (Kaplan & Maehr, 2007, p. 161). Although, according to the conceptualization applied in the present work, goal orientations are considered to be rather stable, it does not mean that they do not change over time or that there is no variation in how they become activated in different contexts. Motivational processes are, of course, dynamic and dependent on the particular nature of individuals as well as of sociocultural contexts and specific situations (see e.g., Kaplan & Maehr, 2002; Lehtinen et al., 1995). For example, age, age-related developmental tasks, and changes in the learning environment are also influential in governing the dominance of certain achievement goal orientations.

Furthermore, in the present study, I adhere to the perspective of research on multiple goals (see e.g., Harackiewicz, Barron, Pintrich, et al., 2002; Niemivirta, 2002b; Pintrich, 2000b; Seifert, 1996) and deem that individuals' goal preferences can be described in terms of several dimensions that students share (i.e., all different classes of goals or types of orientations), but which vary in terms of individual importance or weight. Consequently, the relative emphasis on one or

more of them becomes more relevant than an individual dimension (cf. Dweck, 1996).

As stated in the Introduction, researchers initially distinguished between mastery, performance, and work avoidance goal orientations (e.g., Ames, 1992; Dweck, 1986; Nicholls, 1984; Nicholls et al., 1985). Grounded on this theoretical framework, the conceptualization and operationalization of achievement goal orientations applied in the present work is based on this early division and further, includes later expansions of the theory (see Figure 1). More specifically, mastery orientation is composed of two mastery-related nuances, and performance orientation is divided into distinct approach and avoidance dimensions. Consequently, five types of orientations are considered: mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, and avoidance. Next, a short description of conceptualization and operationalization of achievement goal orientations is given (for more detailed information on operationalization and sample items, see Chapter 2.4).



**Figure 1.** The conceptualization of achievement goal orientations in the present study.

The conceptualization and operationalization of mastery-intrinsic orientation corresponds with the traditional view of mastery goals as reflecting the aim of acquiring knowledge or mastering something new (e.g., Dweck & Elliott, 1983; Nicholls, 1984). Mastery-extrinsic orientation resembles the outcome goals suggested by Grant and Dweck (2003), that is, goals that are simply focused on obtaining positive outcomes (i.e., do well in my courses, get good grades). The difference between mastery-intrinsic and mastery-extrinsic orientations is that even though both refer to the goal of learning, mastery-intrinsic orientation is based on intrinsic criteria (e.g., feelings of understanding), while mastery-extrinsic is grounded on successfully meeting extrinsic assessment criteria (e.g.,

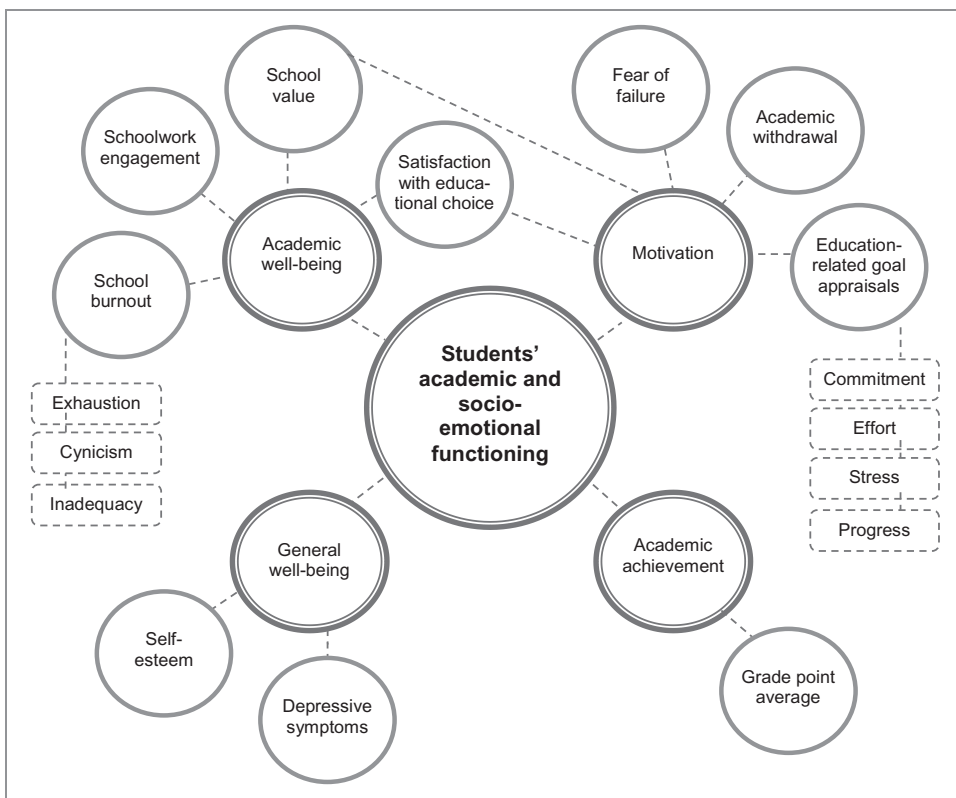
grades or teacher's remarks) (see Niemivirta, 2004a). The conceptualization of the performance-approach and performance-avoidance orientations is in line with the differentiation put forward by Elliot and Harackiewicz (1996); the performance-approach referring to the aim of demonstrating competence and the performance-avoidance referring to the aim of avoiding judgements of incompetence. The important difference between the performance-approach and mastery-extrinsic orientations is the criteria used to define success. In the performance-approach orientation the focus is on relative success (i.e., outperforming others), while in mastery-extrinsic orientation the focus is on absolute success (i.e., getting good grades regardless of what grades others get). In other words, the mastery-extrinsic orientation characterizes the target attainment in criterion-referenced terms rather than in norm-referenced (i.e., social comparison) terms, and thus, the mastery-extrinsic orientation emphasizes achievement, but not competition (see also Brophy, 2005). Finally, the avoidance orientation refers to work avoidance as conceptualized by Nicholls and colleagues (Nicholls et al., 1985; Nolen, 1988). This motivational tendency is conceptually separate from performance goals (i.e., avoiding signs of incompetence) and refers to the aim of avoiding school-related work altogether. Inclusion of avoidance tendencies is, in our view, essential in order to grasp the broad variation in students' achievement-related behaviour. Even though the avoidance orientation was recognized a long time ago, it has received less research attention compared to the performance-avoidance orientation.

Although students may have somewhat different strivings in different learning situations, this study deliberately seeks to examine students' more general achievement goal orientations independent of a specific learning event. Consequently, achievement goal orientations are conceptualized as students' general orientations towards learning and studying, and they are operationalized accordingly, as we specifically aimed at coherence between conceptualization and operationalization. In many other studies, achievement goals or goal orientations are conceptualized as more situation-specific, and the items are phrased in terms of, for example, particular subject matters or specific courses.

### **1.4.3 Conceptualization of academic and socio-emotional functioning**

In addition to achievement goal orientations, other important constructs concerning motivation as well as socio-emotional functioning are included in the present study. Among various constructs of adolescents' academic and socio-emotional functioning, this study focuses on those indicating 1) general well-being (i.e., self-esteem, depressive symptoms), 2) academic well-being (i.e., school burnout, schoolwork engagement, school value, satisfaction with educational choice), 3) motivation and academic functioning (i.e., fear of failure, aca-

ademic withdrawal, education-related goal appraisals), and 4) academic achievement (see Figure 2). Instead of looking exclusively to the negative pole, the focus was extended to the positive pole of students' academic and socio-emotional functioning. This is in line with the positive psychology perspective, which focuses on human strengths and optimal functioning rather than on weaknesses and malfunctioning (Seligman & Csikszentmihalyi, 2000). Accordingly, students' favourable academic and socio-emotional functioning was seen on the one hand as having a positive self-regard and study-related state of mind, valuing school and being committed to studying; on the other hand, it was also seen as lacking depressive symptoms, stress, and school burnout and not being preoccupied with possible failures in school and not giving up easily when confronting challenging academic tasks. Prior research addressing students' achievement goal orientations and well-being has mainly focused on achievement-related emotions (e.g., test anxiety) or on indices of well-being that are not directly linked to a specific context (e.g., self-esteem), while more general school-related well-being (e.g., burnout) has received less attention.



**Figure 2.** The conceptualization of academic and socio-emotional functioning in the present study.

### **1.4.3.1 General well-being**

Self-esteem and depressive symptoms are the indicators of socio-emotional well-being in the present study that are not directly connected to school or an academic context. They are surely very much influenced by the non-academic context as well, especially during adolescence when young people have to negotiate the challenges of puberty (e.g., new body image and social role changes).

#### ***Self-esteem***

When striving for something of personal importance, we continuously compare our progress to a goal or a standard, and this comparison results in self-related appraisals and affective reactions. In this process, the extant level of self-esteem may serve as input in the sense that it influences the kinds of events we consider to be motivationally congruent or threatening in the first place. On the other hand, self-esteem may serve as an outcome in the sense that the perceived success of our self-regulatory efforts (whether self- or task-focused) is an important determinant of how we feel about ourselves in given situations (e.g., fluctuations in self-esteem, Kernis & Waschull, 1995). It has been suggested that self-protection is more common among people with low self-esteem, whereas self-enhancement is more typical of people with high self-esteem. Self-protection becomes especially salient in the classroom context, where ability comparisons are often made or easily inferred, and sometimes they even lead to embarrassment or other social costs. According to the self-worth perspective on achievement motivation developed by Covington (1992), many students equate their sense of worth with the ability to achieve successfully, and they may become more concerned with preserving their sense of self-worth than with learning. This can lead students to face-saving activities, but also to engaging in activities using less-than-ideal strategies (e.g., defensive pessimism, self-handicapping). However, student's goals as well as the meaning of ability become essential here. If a student is striving for self-improvement and greater understanding (i.e., mastery goals) and sees intellectual ability as a means to an end, then the rewards are not dependent on the number of people striving to achieve them, and consequently, the chances of success are rather good and even a possible failure would not pose a serious threat to self-worth. By contrast, if a student judges his or her adequacy in comparison to the performances of others (i.e., performance goals) and treats the pursuit of ability status as a goal in itself, then the rewards (e.g., grades) are dependent on the performances of other students; this competitive test of the individual's self-worth is a risk to the identity, because only some students can win at such a game. As a result, these students typically become failure-avoidant. If a student believes that his or her abilities are enduring and fixed, he or she has a lot at stake when placed under scrutiny as performance

in a given task would represent a measure of one's general potential (see Molden & Dweck, 2000).

In the present study, self-esteem is seen to reflect general self-acceptance, self-respect, and the overall attitude to oneself. Prior studies examining the associations of achievement goal orientations and self-esteem have demonstrated that a mastery orientation is positively correlated with self-esteem, while a performance-approach orientation is unrelated (Schwinger & Stiensmeier-Pelster, 2011; Tapola & Niemivirta, 2008) and performance-avoidance (Schwinger & Stiensmeier-Pelster, 2011; Skaalvik, 1997) and work avoidance (Tapola & Niemivirta, 2008) orientations are negatively correlated with self-esteem. The association between performance-avoidance orientation and self-esteem implies that when students worry that they may look stupid, their self-esteem is affected negatively, or low self-esteem may result in preoccupation with how one is perceived by others (see Skaalvik, 1997). In addition, studies employing a person-centred approach have suggested that learning-oriented students have higher self-esteem than performance-oriented (Niemivirta, 1998), avoidance-oriented, and non-committed students (Tuominen et al., 2004). In a word, differences in the experienced need to self-protect – as reflected in different types of achievement goal preferences – are associated with differences in the level of self-esteem (see Niemivirta, 2004a).

### ***Depressive symptoms***

Depressive symptoms may be taken to reflect the psychological consequences of prolonged failure to meet one's own standards or perceived expectations (Dykman, 1998; Sideridis, 2005, 2007). In this study, the moods of adolescents and the frequency of depressive symptoms experienced during the previous month were considered to reflect the adolescents' depressive symptoms. Compared to childhood, depression levels rise during adolescent years (see Hankin & Abramson, 2001). However, most young people manage adolescence without severe problems, and only a minority suffer from depressive symptoms.

Dykman (1998) proposed a goal orientation model of depression vulnerability, which integrates motivational and cognitive factors in attempting to explain and predict depression. In the background of the model lies Dweck and Leggett's (1988) reasoning that an individual's motivational strivings give rise to cognitive frameworks for interpreting negative events, which in turn influence emotional and behavioural reactions to these events. According to Dykman (1998), one fundamental goal striving that contributes to depression proneness is the need to prove one's basic worth and competence. The model posits that a performance orientation creates vulnerability to depression through repeated failure. More specifically, individuals who emphasize performance orientation are presumed to show greater anxiety in anticipation of a stressful event and greater self-

esteem loss, task disengagement, and depression after a negative event (Dykman, 1998). By contrast, a fundamental goal striving that contributes to depression resistance is the need to learn, grow, and improve. Individuals striving for self-improvement are willing to pursue learning even in the face of challenge and potential threats to self-esteem, because challenging situations are considered opportunities for growth. The findings of Dykman (1998) supported the model, that is, having a predominantly validation seeking (i.e., performance) goal orientation heightened anxiety in anticipation of an ego-threatening event and increased vulnerability to self-esteem loss, task disengagement, and depression after a negative event. Drawing from these findings of Dykman, Sideridis (2005) investigated the effect of performance orientation on depression vulnerability, separating performance-approach and performance-avoidance orientations. His findings showed that only the performance-avoidance orientation was associated positively with depression, while the performance-approach orientation was not maladaptive (Sideridis, 2005).

#### **1.4.3.2 Academic well-being**

In this study, school burnout, schoolwork engagement, school value, and satisfaction with educational choice are seen to reflect students' context-specific, that is, academic, well-being.

##### ***School burnout***

The concept of burnout, generally used in a work context, has been extended to university contexts (Schaufeli, Martínez, Marques Pinto, Salanova, & Bakker, 2002; Schaufeli, Salanova, González-Romá, & Bakker, 2002) as well as to school contexts (Salmela-Aro, Kiuru, & Nurmi, 2008; Salmela-Aro, Kiuru, Pietikäinen, & Jokela, 2008; Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009). As school is a context in which students “work” – they attend classes and complete assignments in order to pass exams and acquire a degree – school burnout represents a relevant indicator of school-related well-being. As in the work context, high perceived demands and lack of perceived resources form the breeding ground for burnout (cf. Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Burnout emerges as a response to students' ongoing difficulties in coping with the achievement pressures in school. School burnout can be defined as consisting of exhaustion due to school demands, a cynical and detached attitude towards one's school, and feelings of inadequacy as a student (Salmela-Aro & Näätänen, 2005; Salmela-Aro, Kiuru, et al., 2009; Schaufeli, Martínez, et al., 2002). School burnout can be considered a continuous phenomenon, from school-related stress to major burnout. It has been suggested that emotional exhaustion and cynicism are initial predictors of feelings of inadequacy (Parker & Salmela-Aro, 2011).



Previous results have shown that in Finland about 10–15% of adolescents suffer from school burnout (Salmela-Aro & Näätänen, 2005; Salmela-Aro, Kiuru, Pietikäinen et al., 2008) and that students on an academic track experience more exhaustion than their peers on a vocational track (Salmela-Aro, Kiuru, & Nurmi, 2008). Moreover, among students on an academic track the level of both cynicism and inadequacy at school increased over time, whereas among students on a vocational track inadequacy at school decreased over time, while cynicism increased before the transition and decreased thereafter (Salmela-Aro, Kiuru, & Nurmi, 2008). A study examining differences in school burnout by gender and educational track (i.e., academic or vocational) across the transition to upper secondary education documented that school burnout was highest among girls on the academic track, but increased most among boys on the academic track and thus suggested that studying on the academic track is risky in terms of developing burnout, whereas the vocational track seems to be protective, particularly for girls (Salmela-Aro & Tynkkynen, 2012). School burnout should be taken seriously, as it has been suggested that school burnout may predict subsequent depressive symptoms later on, that is, it might have detrimental effects in the long run (Salmela-Aro, Savolainen, & Holopainen, 2009).

In our pilot study (Tuominen et al., 2004), learning-oriented students were found to display a relatively low level of overall school burnout, while non-committed and avoidance-oriented students reported significantly higher burnout than learning-oriented students. To my knowledge, there are no other prior studies that have investigated the relations between students' school burnout and achievement goal orientations. However, a study examining university students' cognitive-motivational profiles and their differences with respect to well-being showed that helpless students reported higher levels of stress and exhaustion than either non-academic or self-directed students (Heikkilä et al., 2011). In turn, in a study examining teachers' goal orientations for teaching and their associations with burnout, Retelsdorf, Butler, Streblow, and Schiefele (2010) found that a mastery orientation was negatively related to burnout, while the work avoidance orientation was positively related to burnout. Findings concerning performance goal orientations were somewhat ambiguous, but suggested that the performance-avoidance orientation, not the performance-approach orientation, might be positively associated with teacher burnout.

### ***Schoolwork engagement***

The definitions and characteristics of school engagement vary in the literature, but typically school engagement is described as a multi-dimensional construct that unites different academic, behavioural, cognitive, affective, and psychological components (e.g., Appleton, Christenson, & Furlong, 2008; Fredricks, Blumenfeld, & Paris, 2004; Jimerson, Campos, & Greif, 2003). School engagement



is of fundamental significance for understanding positive development among youth, since not only it is a significant factor in promoting academic achievement, but also a protective factor in terms of healthy youth development; engaged youth are less likely to, for example, drop out of school, get involved in substance use and delinquency, or develop emotional problems, such as depressive symptoms (e.g., Archambault et al., 2009; Li & Lerner, 2011). Recently, schoolwork engagement has been examined in Europe as a positive, fulfilling study-related state of mind characterized by vigour and energy, dedication, and absorption (Salmela-Aro, Kiuru, et al., 2009; Salmela-Aro & Upadyaya, 2012). These dimensions are typically used in studies on work-related engagement (e.g., Hakanen, Bakker, & Schaufeli, 2006; Schaufeli, Martínez, et al., 2002; Schaufeli, Bakker, & Salanova, 2006). In this framework, vigour refers to high levels of energy and mental resilience while studying, the willingness to invest effort in one's work, and persistence even in the face of difficulties. Dedication, in turn, is characterized by a sense of significance, enthusiasm, pride, and inspiration in school, as well as perceiving schoolwork as meaningful. The third defining characteristic of schoolwork engagement is called absorption, which is characterized by the student fully concentrating and being happily engrossed in studying so that time passes quickly. These dimensions are separate constructs of schoolwork engagement, but they correlate highly with each other (Salmela-Aro & Upadyaya, 2012). An examination of the composition of schoolwork engagement dimensions in post-comprehensive education showed that students' engagement is better described as an overall engagement with school, whereas later on among older students schoolwork engagement is likely to become more differentiated and similar to work engagement (Salmela-Aro & Upadyaya, 2012; see also Schaufeli, Martínez, et al., 2002).

In prior research, achievement goal orientations have not been studied in relation to this particular theoretical framework, but goal theorists have generally argued that a mastery orientation sustains school engagement better than a performance orientation (Gonida, Voulala, & Kiosseoglou, 2009; Luo et al., 2011; Midgley, 2002). According to Roeser et al. (2002), early adolescents characterized as "academically helpless" reported less cognitive and behavioural engagement in learning than their more approach-oriented, mastery and ego-goals focused peers. Similarly, Luo et al. (2011) found that students who emphasized both mastery and performance goals were more engaged in learning activities than the other students.

### ***School value***

Following the work of Eccles and her colleagues on task value (e.g., Eccles & Wigfield, 1995; Wigfield & Eccles, 2000), school value is defined as the perceived meaningfulness of schooling in general. Four major components of achievement

task values have been defined: attainment value or importance, intrinsic or interest value, utility value or usefulness of the task, and cost (Eccles et al., 1983; Wigfield & Eccles, 1992). Attainment value refers to the importance of doing well on a given task, intrinsic value is the enjoyment one gains from doing the task, utility value or usefulness refers to how a task fits into an individual's future plans, and cost refers to what the individual has to give up to do a task and how much effort will be needed to invest in the task. In the present study, the three value constructs of importance, interest, and utility are used to reflect the perceived meaningfulness of schooling in general (see Niemivirta, 2004b). In several prior studies, students' mastery goals and task values have been found to relate positively to one another in different academic domains (e.g., Bong, 2005; Bråten & Olaussen, 2005; DeBacker & Nelson, 1999; Luo et al., 2011; Miller, DeBacker, & Greene, 1999; Pintrich, 2000b; Wolters et al., 1996).

### **1.4.3.3 Motivation**

In this study, fear of failure, academic withdrawal, and education-related personal goal appraisals (i.e., commitment, effort, stress, and progress) represent other relevant motivational indices.

#### ***Fear of failure***

Fear of failure may be construed as a self-evaluative framework that contributes to how an individual defines, orients to, and experiences failure in achievement situations (Heckhausen, 1991). It can be seen as a generalized tendency to experience anxiety whenever there is a risk of failing to meet certain evaluative standards (see Niemivirta, 2004a). Accordingly, individuals with a high degree of fear of failure appear to have learned to define failure as an unacceptable event that carries negative implications for their self-worth and potential threats to their more general psychological well-being. For these individuals, achievement situations are not just opportunities to learn or outperform others, but are threatening experiences that might put the entire self on the line – they are potentially shameful events (Elliot & Thrash, 2004; McGregor & Elliot, 2005). The preoccupation with failure is likely to result in ruminative thoughts and distracted attention and, potentially, in self-focused coping (e.g., self-handicapping or other forms of self-protective behaviour). Thus, fear of failure is something that should always result in negative motivational outcomes; it is not a positive incentive.

According to Dykman (1998), individuals whose primary goal is to prove their worth and competence view challenging situations as tests of these traits, and, therefore, there is a lot “at stake”. These individuals are likely to show heightened anticipatory anxiety and fear of failure. In turn, individuals who strive for

learning and self-improvement are more likely to appraise challenging situations as opportunities to grow, and, therefore, the implications of an unfavourable outcome are considerably less threatening and thus less anxiety provoking than for validation seeking individuals.

Empirical research has supported these notions. Mastery-intrinsic orientation has been negatively related to fear of failure (Dykman, 1998; Fryer & Elliot, 2007; Niemivirta, 2002b). In turn, other mastery-related nuances, that is, mastery-extrinsic orientation (i.e., striving for success) and mastery-avoidance (i.e., avoiding not mastering the task), have been positively related to fear of failure (Elliot & McGregor, 2001; Niemivirta, 2002b). The performance-approach and performance-avoidance orientations have both been positively related to fear of failure (Dykman, 1998; Elliot & Church, 1997; Elliot & Murayama, 2008; Fortunato & Goldblatt, 2006; Fryer & Elliot, 2007; Niemivirta, 2002b). A work avoidance orientation has been either unrelated (Niemivirta, 2002b) or positively related (Steinmayr & Spinath, 2009) to fear of failure. In addition, Fryer and Elliot (2007) have found that individuals, who have a high degree of fear of failure, and in this way, are particularly sensitive to competence evaluation, demonstrate the greatest amount of change in their overall configuration of goals over time.

### ***Academic withdrawal***

Academic withdrawal refers to an individual's tendency to give up or withdraw from demanding or difficult achievement situations. Niemivirta (2004a) suggests that the generalized tendency to perceive difficulties in the face of challenging situations diminishes feelings of control and increases the likelihood of engaging in self-focused coping activity, that is, in activity aimed at restoring emotional balance. There is evidence that individuals oriented towards performance are more likely to disengage and give up when dealing with stressful events compared to individuals who strive for learning and self-improvement (Dykman, 1998). Further, both mastery-intrinsic and mastery-extrinsic orientations have been shown to be negatively correlated with academic withdrawal, while performance-avoidance and work avoidance orientations have been positively correlated with academic withdrawal (Niemivirta, 2002b). According to Luo et al. (2011), the success oriented students (i.e., students high in performance-approach and performance-avoidance and moderate in mastery) were most likely to give up in the face of difficult tasks in math.

### ***Education-related personal goal appraisals***

Personal goals and projects (Little, 1983) represent the consciously articulated, personally meaningful objectives that individuals pursue in their daily lives. Sev-

eral theorists have argued that personal goals and how they are appraised play an important role in the development and maintenance of individuals' subjective well-being (Little, 1983; Little, Salmela-Aro, & Phillips, 2007; Vasalampi, Salmela-Aro, & Nurmi, 2010). Personal goals are typically examined by asking individuals to generate a list of goals and to rate each goal according to various appraisal dimensions, such as importance, progress, stress, accomplishment, and attainability (Little, 1983). These nomothetic dimensions that link goals to subjective well-being permit comparisons across persons, even though they possess idiographic sets of personal goals. Personal goals that are appraised as stressful and difficult to achieve have been found to be associated with depressive symptoms (Salmela-Aro & Nurmi, 1996). Similarly, being highly committed to many work-related goals has been found to correlate with work burnout (Salmela-Aro & Nurmi, 2004). Personal goal appraisals have rarely been studied along with achievement goal orientations. However, our pilot study (Tuominen et al., 2004) revealed that goal orientation groups differed in terms of how they appraised their educational goals. For example, the appraisals concerning education-related personal goals were most negative among the avoidance-oriented students; these students were the least committed, demonstrated the least effort, and experienced the least goal progress, but also experienced the least stress with their current goal status. Learning- and performance-oriented students were the most positive in their goal appraisals.

#### **1.4.3.4 Academic achievement**

In this study, academic achievement is also seen to reflect students' academic functioning. With respect to associations between mastery goals and objective academic achievement, studies have revealed both null effects (Elliot & Church, 1997; Harackiewicz et al., 1997, 2000) as well as positive relationships (e.g., Brdar et al., 2006; Meece & Holt, 1993; Steinmayr & Spinath, 2009; Steinmayr, Bipp, & Spinath, 2011). Mastery-extrinsic (Niemivirta, 2002b) and performance-approach orientations (e.g., Barron & Harackiewicz, 2001; Elliot & Church, 1997; Elliot & McGregor, 1999; Harackiewicz et al., 1998, 2000) have been positively related to achievement and grades. In contrast, performance-avoidance (Elliot & Church, 1997; Luo et al., 2011; Skaalvik, 1997) and work avoidance orientations (Ng, 2009; Niemivirta, 2002b; Steinmayr et al., 2011) have been linked with lower levels of academic achievement.



## **2 AIMS AND METHODS OF THE PRESENT STUDY**

### **2.1 Main Aims**

This dissertation is based on three original publications, which are referred to in the text by their Roman numerals (Studies I–III). Study II comprises two substudies, which are referred to as Substudy IIa and Substudy IIb.

The general objective of this research overall was to investigate the complex interplay and developmental dynamics between achievement goal orientations and academic and socio-emotional functioning among students facing educational transitions. With the conceptual and theoretical framework as outlined above, the general aim was approached through the following research questions:

1. What kinds of achievement goal orientation profiles can be identified among lower and upper secondary school students (Studies I, II, and III)?
2. How stable are the achievement goal orientation profiles preceding educational transitions (Study II) and across an educational transition (Study III)? What are the typical and conversely untypical developmental trajectories of change (Studies II and III)?
3. How do students with different achievement goal orientation profiles differ with respect to (a) general well-being (Study I) and academic well-being (Studies I, II, and III), (b) other relevant motivational indices (Studies I and II), and (c) academic achievement (Studies I and II)?
4. How are the changes in achievement goal orientation profiles related to parallel changes in academic well-being (Study III)?

**Table 1.** Summary of the participants, aims, measures, and data analyses.

Study	Participants	Main aims
Pilot study	<ul style="list-style-type: none"><li>• Pilot cohort: Time 1</li><li>• 9th-graders from lower secondary schools (N=561)</li></ul>	<ul style="list-style-type: none"><li>• To examine students' achievement goal orientation profiles and profile differences in education-related goal appraisals and subjective well-being</li></ul>
Study I	<ul style="list-style-type: none"><li>• Cohort 1: Time 1</li><li>• Cohort 2: Time 1</li><li>• 9th-graders from lower secondary schools and 2nd-year students from general upper secondary schools (N=1321)</li></ul>	<ul style="list-style-type: none"><li>• To examine students' achievement goal orientation profiles and profile differences in general and academic well-being and academic achievement</li></ul>
Study II	Substudy IIa: <ul style="list-style-type: none"><li>• Cohort 1: Time 1 &amp; Time 2</li><li>• 9th-graders from lower secondary schools (N=530)</li><li>• Measurement period: 4 months</li></ul>	Substudy IIa: <ul style="list-style-type: none"><li>• To examine lower secondary school students' achievement goal orientation profiles, the temporal stability of these profiles <b>within a school year</b>, and profile differences in other motivational indices and academic achievement</li></ul>
	Substudy IIb: <ul style="list-style-type: none"><li>• Cohort 2: Time 1 &amp; Time 2</li><li>• 2nd-year students from general upper secondary schools (N=519)</li><li>• Measurement period: 12 months</li></ul>	Substudy IIb: <ul style="list-style-type: none"><li>• To examine upper secondary school students' achievement goal orientation profiles, the temporal stability of these profiles <b>between school years</b>, and profile differences in other motivational indices and academic achievement</li></ul>
Study III	<ul style="list-style-type: none"><li>• Cohort 1: Time 1 &amp; Time 3</li><li>• 9th-graders from lower secondary schools (N=579)</li><li>• Measurement period: 12 months</li></ul>	<ul style="list-style-type: none"><li>• To examine students' achievement goal orientation profiles, the temporal stability of these profiles <b>across the transition</b> to upper secondary education, and profile differences in academic well-being</li><li>• To examine how the changes in achievement goal orientation profiles are related to parallel changes in academic well-being</li></ul>

Measures	Data analyses
<ul style="list-style-type: none"> <li>• Achievement goal orientations: mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, avoidance</li> <li>• Education-related goal appraisals: commitment, effort, stress, progress, extrinsic and intrinsic motivation</li> <li>• Self-esteem</li> <li>• School burnout</li> </ul>	<ul style="list-style-type: none"> <li>• Latent class cluster analysis</li> <li>• Analysis of variance</li> </ul>
<ul style="list-style-type: none"> <li>• Achievement goal orientations: mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, avoidance</li> <li>• Self-esteem</li> <li>• Depressive symptoms</li> <li>• School burnout: exhaustion, cynicism, inadequacy</li> <li>• Education-related goal appraisals: commitment, effort, stress, progress</li> <li>• Academic achievement</li> </ul>	<ul style="list-style-type: none"> <li>• Confirmatory factor analysis</li> <li>• Correlational analyses</li> <li>• Latent profile analysis</li> <li>• Analysis of variance</li> </ul>
<p>Substudies IIa and IIb:</p> <ul style="list-style-type: none"> <li>• Achievement goal orientations: mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, avoidance</li> <li>• School value</li> <li>• Fear of failure</li> <li>• Academic withdrawal</li> <li>• Academic achievement</li> </ul>	<p>Substudies IIa and IIb:</p> <ul style="list-style-type: none"> <li>• Longitudinal confirmatory factor analysis</li> <li>• Correlational analyses</li> <li>• Latent profile analysis</li> <li>• I-States as Objects Analysis -procedure</li> <li>• Configural frequency analysis</li> <li>• Analysis of variance</li> </ul>
<ul style="list-style-type: none"> <li>• Achievement goal orientations: mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, avoidance</li> <li>• School burnout: exhaustion, cynicism, inadequacy</li> <li>• Schoolwork engagement (assessed only at Time 3)</li> <li>• School value</li> <li>• Satisfaction with educational choice (assessed only at Time 3)</li> <li>• Educational track</li> </ul>	<ul style="list-style-type: none"> <li>• Longitudinal confirmatory factor analysis</li> <li>• Correlational analyses</li> <li>• Latent profile analysis</li> <li>• I-States as Objects Analysis -procedure</li> <li>• Configural frequency analysis</li> <li>• Analyses of variance and covariance</li> </ul>



With the present work, I sought to contribute to these research questions by investigating the prevalence, temporal stability, and functionality of achievement goal orientation profiles in three original studies. The pilot study (Tuominen et al., 2004), in which the design utilized in the present work was tested, examined ninth-grade students' achievement goal orientation profiles and profile differences in subjective well-being. Study I investigated lower and upper secondary school students' achievement goal orientation profiles and profile differences in well-being as well as academic achievement by using a cross-sectional design; Study II focused mainly on investigating the temporal stability and change in students' achievement goal orientations preceding educational transitions; and Study III extended the results obtained in Studies I and II by examining students' achievement goal orientation profiles, temporal stability in profiles across an educational transition, and profile differences in academic well-being (see Table 1).

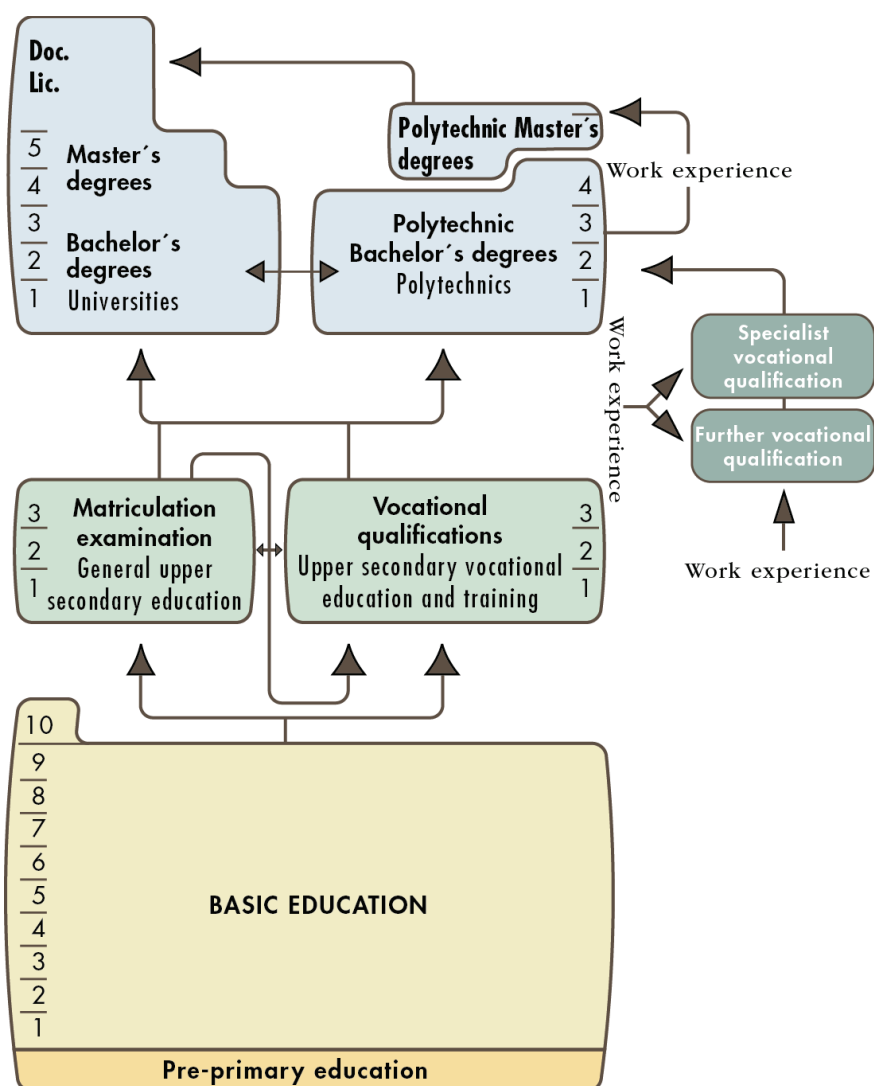
Some general assumptions were made about the expected findings this dissertation might yield. Overall, it was proposed that students endorse multiple, even competing, goals simultaneously and that the patterns of these goals are rather stable over time and differentially related to academic and socio-emotional functioning. First, based on prior work (Niemivirta, 1998, 2002b; Roeser et al., 2002; Tuominen et al., 2004), we expected to find several groups of students with different motivational profiles. In line with the literature, we anticipated at least groups with a dominant tendency towards mastery, performance, and avoidance as well as a group of students without a dominant tendency towards any specific goal orientation. Further, it was anticipated that rather similar motivational profiles would be identified among both lower and upper secondary school students. Second, as previous studies have exhibited moderate to high stability in achievement goal orientations within and between school years (e.g., Meece & Miller, 2001; Middleton et al., 2004; Senko & Harackiewicz, 2005) and even moderate stability across an educational transition (E. M. Anderman & Midgley, 1997; L. H. Anderman & Anderman, 1999), we expected relatively high normative stability in achievement goal orientations and also rather stable goal orientation profiles over time. However, along the lines of some prior studies (Bråten & Olaussen, 2005; Ratelle et al., 2004; Roeser et al., 1999), we assumed that while many students would display a relatively stable motivational profile, some students would demonstrate either adaptive or maladaptive change in motivation over time. Third, as to the group differences in academic and socio-emotional functioning, the predictions were mainly based on the results from Dykman (1998), Roeser et al. (2002), and Sideridis (2005). It was presumed that students who predominantly display mastery tendencies would express the most adaptive pattern of academic and socio-emotional functioning, while students pursuing more performance-related goals and outcomes would show some signs

of emotional distress, and students emphasizing avoidance tendencies would show the most maladaptive pattern of academic and socio-emotional functioning.

## **2.2 Context: The Finnish Education System**

The Finnish education system (see Figure 3) consists of basic education, upper secondary general and vocational education, higher education, and adult education (Finnish National Board of Education, 2012). Education is provided free of charge as a universal right all the way through school and higher education. Virtually all students attend publicly-funded schools. At the age of six, children can attend free pre-primary education. The comprehensive school is a nine-year compulsory general schooling for all children aged 7–16. It is comprised of primary school (grades 1–6) and lower secondary school (grades 7–9). During the first six years, instruction is mainly given by the class teacher, and during the last three years, by the subject teacher. The school year is comprised of 190 days, and the number of lessons per week varies from 19 (grade 1) to 30 (grades 7–9).

After completing compulsory schooling, young Finns face an important choice: whether to continue in general education, that is, in general upper secondary school (the academic track) or apply for vocational upper secondary education (the vocational track). For example, in the years 2002 and 2004 (i.e., the years when the two cohorts of the present study completed comprehensive school; see Chapter 2.3 for information on the cohorts), more than 90% of those completing comprehensive school in Finland continued in the upper secondary level in the year of graduation; 54.8% and 54.1%, respectively, opted for general upper secondary school, and 36.7% and 38.4% for vocational school, while 2.6% and 2.5% remained in comprehensive school to attend the optional tenth grade, and 5.9% and 5.0% did not immediately continue their formal education (Statistics Finland, 2009). If those completing comprehensive school feel that their skills are not quite up to the standard required by further education, they can supplement their knowledge and improve on the school-leaving certificate grades by enrolling in additional, optional education in the so-called tenth grade. Some students who do not continue in formal education after comprehensive school may study at folk high schools, which are institutions offering a broad range of education for adults that is mainly non-formal and does not lead to an academic degree.



**Figure 3.** Education structure in Finland (Finnish National Board of Education, 2012).

Student selection for general upper secondary schools is mainly based on previous academic achievement, whereas selection criteria used by vocational schools may also include work experience and other comparable factors and possibly entrance and aptitude tests. The curriculum of a general upper secondary school may be completed in 2 to 4 years, but the majority of students finish in three. The teaching is organized in a non-graded form. General upper secondary schooling ends with a national matriculation examination. General upper secondary education gives pupils a wide choice of further education options. Vocational upper secondary education and training leads to a vocational qualification. The goal is that, on completing their studies, students should have a broad voca-

tional education and training and the skills required for working life. Vocational qualifications usually take three years to complete. In general upper secondary education the discontinuation percentage has been around 4, while in vocational upper secondary education it varied between 8.5% and 10.5% in the academic years 2005/2006–2009/2010 (Statistics Finland, 2012).

In Finland, the change to upper secondary education is a key educational transition in adolescence. Further, it can be a challenge for school adjustment, owing to the many simultaneous changes occurring. Therefore, the last grade in comprehensive school, the ninth, as well as the forthcoming transition to upper secondary education can be assumed to be stressful for students. Students' academic achievement during the ninth grade has important ramifications, as high academic achievement is required to be able to enter general upper secondary school and even some vocational schools. For students opting for vocational schools, the coming transition also entails selecting an occupational field. Furthermore, after the transition, both general upper secondary school and vocational school studies are somewhat different in structure from comprehensive school. For example, in general upper secondary education, students choose courses according to their individual programmes. The academic expectations, demands, and norms of general upper secondary school can be challenging and stressful for some.

After completing either general upper secondary school or vocational education, students are eligible to move into higher education, which is offered in polytechnics and universities. The transition to higher education after completing upper secondary education is not that straightforward, however. For example, universities select their own students on the basis of entrance examinations and previous academic achievement, and the competition for study places is fierce. Student selection for polytechnics is usually based on academic achievement, work experience, and entrance examinations. In the year 2005 (i.e., the year when the students in Cohort 2 of the present study were graduating from general upper secondary school), as many as nearly 60% of those passing the matriculation examination did not continue studies leading to a degree immediately after graduation; 19.5% continued studies in university education, 18.2% continued studies in polytechnic education, and 4.3% continued studies in upper secondary vocational education (Statistics Finland, 2011). The relatively long time gap between upper secondary and tertiary studies has been identified as a serious societal problem (Ministry of Education and Culture, 2010). Every year a crowd of students applies for postsecondary education that is triple the number of one secondary school graduate generation. Less than half succeed in getting a study place, with the rest caught in the “secondary school graduate blockage”.

## 2.3 Participants and Procedure

In all of the original studies, the data were drawn from the Finnish Educational Transitions (FinEdu) Studies, which is a collaborative project by the Helsinki Collegium for Advanced Studies and the University of Jyväskylä. The project has been mainly funded by the Academy of Finland and the Jacobs Foundation. FinEdu is an ongoing follow-up study, whose overall purpose is to investigate the educational transition periods of young people with special emphasis on the role of personal goals, motivation, and subjective well-being. It started in the year 2003, and I have been involved in the planning and implementation of the data collection from the very beginning of this study. The data were collected in one city in Eastern Finland, which has about 90 000 inhabitants. The FinEdu study has two cohorts: a group of ninth-graders (about 15 years old, the majority born in 1988) from comprehensive schools (all ninth-graders from all lower secondary schools in this city, of which there are 9) and a group of second-year students (about 17 years old, the majority born in 1986) from general upper secondary schools (all second-year students from all general upper secondary schools in this city; of which there are 6). The vast majority (99%) of the participants are Finnish-speaking.

The data used in the present dissertation included three measurement occasions for the lower secondary school sample (i.e., two measurement occasions during the ninth grade and one after the transition to upper secondary education) and two measurement occasions for the general upper secondary school sample (i.e., during the second and third years of general upper secondary school). Figure 4 illustrates the details of the data collection. Information on the number of participants and the measurement points used in each of the original studies is given in Table 1.

Pilot study	Measurement point		
	Fall 2003		
<b>Pilot cohort:</b> Lower secondary school students	<b>Time 1</b> Lower secondary school, 9 <sup>th</sup> grade, N=561		
	Pilot study		

Original studies	Measurement points		
	January 2004	May 2004	January 2005
<b>Cohort 1 (FinEdu):</b> Lower secondary school students	<b>Time 1</b> Lower secondary school, 9 <sup>th</sup> grade, N=707	<b>Time 2</b> Lower secondary school, 9 <sup>th</sup> grade, N=642	<b>Time 3</b> Upper secondary education, 1 <sup>st</sup> year, N=818
	Studies I, II (Substudy IIa), III	Study II (Substudy IIa)	Study III
<b>Cohort 2 (FinEdu):</b> General upper secondary school students	<b>Time 1</b> General upper secondary school, 2 <sup>nd</sup> year, N=614		<b>Time 2</b> General upper secondary school, 3 <sup>rd</sup> year, N=636
	Studies I, II (Substudy IIb)		Study II (Substudy IIb)

*Note.* Black vertical bars represent the normative transition points.

**Figure 4.** A description of cohorts and data collection of the study.

The data collection in the schools was organized by contact persons recruited for the study (i.e., teachers or student counsellors); the contact persons were in charge of coordinating the distribution of the questionnaires and instructing the students in filling them in. Questionnaires were administered to students in the classrooms during normal class time. In addition, reminders were mailed to those students who had taken part in the study during earlier measurement occasions, but who had not been reached in the data collection events held at the schools. Students were informed that participation in the study was voluntary. Students were assured that their responses were confidential and that only the researchers would have access to the data. Students were also informed that there were no right or wrong answers, but only statements reflecting their thoughts, attitudes, and behaviours.

## 2.4 Measures

The participants completed questionnaires tapping various types of constructs related to student motivation and well-being, among other things. Next, the measures relevant to this dissertation are briefly described. Students' motivational strivings were approached by assessing achievement goal orientations (see Figure 1). In addition, the present study included various indices of students' academic and socio-emotional functioning (see Figure 2). A summary of the measures used in each of the original studies is presented in Table 1. Cronbach's alpha reliabilities for all variables are presented in Appendix C.

### ***Achievement goal orientations***

Using an instrument originally developed by Niemivirta (2002b), five types of achievement goal orientations were assessed: mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, and avoidance (see Appendix D, for all items). The scales assessed students' general orientations to learning and studying. The scale for the *mastery-intrinsic orientation* comprised three items assessing students' focus on learning, understanding, and gaining competence (e.g., "To acquire new knowledge is an important goal for me in school"). The scale for the *mastery-extrinsic orientation* (see Niemivirta, 2002b, 2004a) comprised three items assessing students' aspirations for getting good grades and succeeding in school (e.g., "It is important for me to get good grades"). The scale for the *performance-approach orientation* comprised three items assessing students' focus on relative ability and judgements of competence (e.g., "An important goal for me in school is to do better than the other students"). The scale for the *performance-avoidance orientation* comprised three items assessing the avoidance of demonstrating normative incompetence (e.g., "I try to avoid situations in which I may fail or make mistakes"). The scale for the *avoidance orientation* (referring to work avoidance, see Nicholls et al., 1985; Nolen, 1988) comprised three items reflecting students' desire to avoid achievement situations and minimize the effort and time spent on studying (e.g., "I try to get away with as little effort as possible in my school work"). Students rated all items using a 7-point Likert-type scale ranging from 1 (*Not true at all*) to 7 (*Very true*). Composite scores were computed separately for the five orientations.

The measure of achievement goal orientations used in the present study is founded on the theoretical framework discussed in the Introduction and has a history dating back to the mid-1990s (e.g., Niemivirta, 1997, 1998). The instrument has been developed concurrently with new advances in the field and with the development of other more common measures. The rather crucial difference between the current measure and many other, more common measures is the level of generality. In the instrument used here, the items are phrased in terms of

schoolwork in general (for similar usage, see e.g., L. H. Anderman & Anderman, 1999; Grant & Dweck, 2003; Skaalvik, 1997), while in many other measures, the items are phrased in terms of, for example, particular subject matters or specific courses or tasks (e.g., Elliot & McGregor, 2001; Fryer & Elliot, 2007; Meece & Miller, 2001; Wolters et al., 1996).

### ***Self-esteem***

*Self-esteem* was assessed using a short version of the Rosenberg (1965) self-esteem scale (see also Salmela-Aro & Nurmi, 2007). The scale consisted of five items with statements reflecting general self-acceptance, self-respect, and an overall attitude towards oneself (e.g., “I think I have many good qualities”). Responses were given on a 7-point Likert-type scale ranging from 1 (*I completely disagree*) to 7 (*I completely agree*).

### ***Depressive symptoms***

The frequency of experienced *depressive symptoms* was assessed with the Finnish Depression Scale (DEPS-10) by Salokangas, Stengård, and Poutanen (1994; see also Salokangas, Poutanen, & Stengård, 1995). The scale consists of 10 items reflecting the moods of respondents during the previous month (e.g., “I felt blue”, “I felt lonely”, “I felt hopeless about the future”, “I felt everything was an effort”). Responses were given on a 4-point scale ranging from 0 (*Not at all*) to 3 (*Very much*). The DEPS has proven to be a useful screening instrument for depression, with both diagnostic and predictive validity (Poutanen, Koivisto, Joukamaa, Mattila, & Salokangas, 2007).

### ***School burnout***

School burnout was assessed by using the School Burnout Inventory (SBI) developed by Salmela-Aro and her colleagues (Salmela-Aro & Näätänen, 2005; for reliability and validity, see Salmela-Aro, Kiuru, et al., 2009). The inventory consists of three subscales: *exhaustion at school* (e.g., “I feel overwhelmed by my schoolwork”), *cynicism toward the meaning of school* (e.g., “I feel that I am losing interest in my schoolwork”), and *a sense of inadequacy as a student* (e.g., “I often have feelings of inadequacy in my schoolwork”). Each subscale comprised three items, which were assessed using a 6-point Likert-type scale ranging from 1 (*Completely disagree*) to 6 (*Completely agree*). Composite scores were computed separately for the three subscales of school burnout. In the present study, the focus was not on clinical school burnout, but rather on burnout symptoms as a continuum.



### ***Schoolwork engagement***

*Schoolwork engagement* was assessed by the Schoolwork Engagement Inventory (EDA, Salmela-Aro & Upadyaya, 2012), which is an abbreviated student version of the Utrecht Work Engagement Scale developed by Schaufeli and his colleagues (Schaufeli, Martínez, et al., 2002; Schaufeli et al., 2006). The inventory consists of nine items measuring vigour (three items: e.g., “When I study, I feel that I am bursting with energy”), dedication (three items: e.g., “I am enthusiastic about my studies”), and absorption (three items: e.g., “Time flies when I’m studying”) in relation to schoolwork. Students rated all items on a 7-point Likert-type scale ranging from 0 (*Never*) to 6 (*Every day*). For the purpose of this study, a composite score was computed from all nine items to indicate the level of students’ schoolwork engagement. The validity and reliability of the inventory among students attending post-comprehensive schools have been investigated in detail in a study by Salmela-Aro and Upadyaya (2012), according to which both one-factor and three-factor solutions of schoolwork engagement are applicable when using the inventory.

### ***School value***

The scale for *school value* (Niemivirta, 2004b) consisted of three items assessing students’ perceived importance, utility, and interestingness of school going and studying (e.g., “I think going to school is a waste of time”, reversed item). Items were rated using a 7-point Likert-type scale ranging from 1 (*Not true at all*) to 7 (*Very true*).

### ***Satisfaction with educational choice***

*Satisfaction with educational choice* was assessed after the transition to upper secondary education (Cohort 1, Time 3) by asking students to report their satisfaction with their choice of education. Four items (e.g., “Are you satisfied with your current form of education?”, “Do you feel that your current choice of education was a successful one?”) were rated on a 5-point Likert-type scale ranging from 1 (*Not at all*) to 5 (*Very much*).

### ***Fear of failure***

The scale for *fear of failure* (Niemivirta, 2002b) comprised three items assessing students’ preoccupation with possible failures in school (e.g., “I always worry about failing in tests and exams”). Items were rated using a 7-point Likert-type scale ranging from 1 (*Not true at all*) to 7 (*Very true*).

### ***Academic withdrawal***

The scale for *academic withdrawal* (Niemivirta, 2002b) comprised three items reflecting students' generalized tendency to withdraw from demanding school tasks or to give up easily (e.g., "I have realized that I give up easily if school tasks are difficult"). Items were rated using a 7-point Likert-type scale ranging from 1 (*Not true at all*) to 7 (*Very true*).

### ***Education-related personal goal appraisals***

Personal goals were assessed using a revised version of Little's (1983) Personal Project Analysis inventory with an emphasis on goal appraisals (see also Salmela-Aro & Nurmi, 1996). The participants were first asked to produce one personal goal related to education, after which they appraised this goal according to *commitment* (two items; e.g., "How committed are you to this goal?"), *effort* (two items; e.g., "How much time and effort do you expend on this goal?"), *stress* (two items; e.g., "How stressful do you find your goal?"), and *progress* (three items; e.g., "How capable are you of realizing your goal?"). All items were rated using a 7-point Likert-type scale ranging from 1 (*Very little*) to 7 (*Very much*). Composite scores were computed separately for the four goal appraisals.

### ***Academic achievement***

Students' self-reported grade point average (GPA) was used as a measure of their *academic achievement*. At each measurement point, the students were asked to report their GPA from the preceding term. In the analysis of the relationships between academic achievement and achievement goal orientations, the estimates for students' final school performance for the year of the actual data collection were derived from the following data collection.

## **2.5 Analytical Approach: Person-Centred Approach**

The populations investigated in the field of behavioural sciences are often heterogeneous. Population heterogeneity can be either observed or unobserved. Heterogeneity is observed if it is possible to define the subpopulations based on an observed variable (e.g., gender). By contrast, heterogeneity is unobserved if the variables that cause the heterogeneity in the data are not known beforehand nor is it known to which of the subpopulations a participant belongs. In this case, the subpopulation membership of the participants has to be inferred from the data. Even when population heterogeneity is unobserved, it can be taken into account by using latent classes, which refer to the subpopulations. (Lubke & Muthén,

2005). Methods that take unobserved heterogeneity into account are often referred to as person-centred or person-oriented.

The person-centred research (for overviews, see Bergman & El-Khoury, 2003; Bergman, Magnusson, & El-Khoury, 2003) focuses on the person as a functioning totality within the area of study. Accordingly, the person “as a whole” comes into focus as the main conceptual and analytical unit. This approach can be contrasted to variable-centred research, where the variable is treated as the main unit. At the level of statistical analysis, this means that “individuals are studied on the basis of their patterns of individual characteristics rather than on the basis of separate variables, as is the case in standard variable-oriented analyses” (Bergman & Nurmi, 2010, p. 7). Also, research questions and hypotheses are formulated in terms of individuals and profiles of variable values. Methodological solutions for carrying out person-centred research are to a large extent based on classification procedures, that is, on grouping individuals with similar value profiles using, for example, cluster analysis, latent class analysis, or latent profile analysis.

On the whole, the variable-centred perspective has been more common in achievement goal research, that is, numerous studies have focused on different types of goals or goal orientations and their relationships with other variables. However, the person-centred approach has received growing attention in the field in the past two decades. Indeed, a person-centred focus is useful in achievement goal research, whenever it is assumed that the data include heterogeneous groups of individuals. The use of person-centred analytical techniques is particularly important for researchers who are interested in the multiple goals perspective (see Pastor et al., 2007). Furthermore, as the person-centred focus is useful with longitudinal data to represent heterogeneity in developmental trajectories (Bergman & Andersson, 2010; Bergman, Nurmi, & von Eye, 2012; Muthén & Muthén, 2000), this approach provides helpful tools for studying the development of typical individual patterns of achievement goal orientations across time. In this study, a person-centred approach was utilized in order to classify students into homogenous groups with similar patterns of achievement goal orientation. Latent profile analysis was used to group the students (see Chapter 2.6.3). For studying individual development in achievement goal orientations over time, the I-States as Objects Analysis (ISOA) procedure (see Chapter 2.6.3) and configural frequency analysis were employed (see Chapter 2.6.4).

To conclude, in accordance with the main aims of this dissertation, the primary focus in this study was on person-centred analyses. However, variable-centred analyses were included in all of the original studies as well in order to complement the person-centred analyses and obtain a comprehensive view of students’ achievement goal orientations and their stability and change over time.

## 2.6 Data Analyses

Next, I will briefly describe the main statistical analyses used. In the original studies, the analyses proceeded as follows: Confirmatory factor analyses (cross-sectional and/or longitudinal) were first used to investigate the validity of the constructs. Second, following a person-centred approach, latent profile analyses were used for the classification of students into distinct motivational groups. Third, the stability of and changes in group memberships were examined by means of configural frequency analyses. Finally, group differences were examined by using analyses of variance and covariance. The summary of the specific data analyses used in each of the original studies is presented in Table 1.

### 2.6.1 Confirmatory factor analysis

Confirmatory factor analysis (CFA) is a special case of structural equation models and tests a priori measurement models in which both the number of factors (i.e., constructs) and their correspondence to the indicators (i.e., observed variables) are specified (Hair, Black, Babin, & Anderson, 2010; Kline, 2005). In other words, the researcher has to specify the model a priori on the basis of theoretical knowledge, after which the CFA is used to estimate the parameters of the model. The rationale is to test statistically the significance of a hypothesized factor model, that is, whether the sample data confirm the model (Schumacker & Lomax, 2004). The validity of the hypothesized model is further confirmed if additional samples of data fit the model (Schumacker & Lomax, 2004).

CFA models were used to examine the factor structure and validity of achievement goal orientation scales in all of the original studies. More specifically, in Study I, a CFA was conducted on items reflecting both achievement goal orientations and well-being. In Studies II and III, preliminary cross-sectional CFAs on achievement goal orientation items were performed separately for the two time points in order to verify the acceptability of the measurement of the constructs before moving on to the longitudinal confirmatory factor analyses. In all cases, a model was specified in which all items for each scale were allowed to load on the corresponding factor only. Moreover, factors were allowed to correlate and errors were assumed to be uncorrelated. The analyses were performed using the *Mplus* statistical package (Muthén & Muthén, 1998–2004, 1998–2006), Versions 3.01 (Study I) and 5.1 (Studies II and III). All solutions were generated using maximum likelihood (ML) estimation. As recommended (Hu & Bentler, 1998, 1999; Kline, 2005), goodness of fit was evaluated using multiple indices. A combination of the following indices was used: Comparative Fit Index (CFI, Bentler, 1990) with a cutoff value close to .95, the root mean square error of approximation (RMSEA, Steiger, 1990) with a cutoff value close to .06, and the standardized root mean square residual (SRMR, Hu & Bentler, 1998) with a

cutoff value close to .09. According to Browne and Cudeck (1993),  $RMSEA \leq .05$  indicates a very good model fit, values between .05 and .08 suggest reasonable error of approximation, and  $RMSEA \geq .10$  suggests poor fit.

Missing data occurred when students missed class on the day the questionnaires were administered. Furthermore, there were only small amounts of missing data for individual items (less than 1%). Concerning missing values in CFAs and all further analyses, in Study I, the missing values in achievement goal orientation measures were not imputed. In Studies II and III, the missing values in achievement goal orientation measures were imputed by the expectation–maximization (EM) algorithm as implemented in the SPSS/PASW statistical programme before moving onto confirmatory factor analyses and latent profile analyses. The imputed data were then used in further analyses.

### **2.6.2 Longitudinal confirmatory factor analysis**

When a researcher wishes to use a given measure to make comparisons across time, the validity of those comparisons depends on the assumption that the same construct is being measured at each time point. This assumption of measurement invariance can be tested using longitudinal CFA (Meredith, 1993). Accordingly, LCFAs were conducted in order to examine a) the structural stability (i.e., measurement invariance), b) the stability in mean levels, and c) the normative stability of achievement goal orientations. Only after sufficient measurement invariance over time is established can the change in mean levels be assessed. The normative stability of the construct refers to the degree to which the relative ordering of the subjects on the variable remains constant over time; high correlations across time reflect high stability in relative individual differences.

For this dissertation, the LCFA was used in Studies II (Substudies IIa and IIb) and III. LCFAs were performed on items reflecting achievement goal orientations at different measurement points using the *Mplus* statistical package (Muthén & Muthén, 1998–2006), Versions 4.2 (Study II) and 5.1 (Study III). In all cases, a model was specified in which all items for each scale were allowed to load on the corresponding factor only, and the factors were allowed to correlate, both concurrently and across the measurement points. In contrast to cross-sectional factor analysis, in longitudinal measurement models it is theoretically justifiable to believe that errors of corresponding indicators should be correlated; consequently, the covariances between parallel error terms were freely estimated.

The procedure for testing invariance involved testing and comparing six models that imposed successive equality restrictions on model parameters. The least demanding test is of configural invariance; Model 1 was the baseline model, which tested the equality of the overall factorial structure over time. Model 2 was

identical to Model 1 except that the factor loadings of the corresponding items were forced to be equal across measurement points. A comparison of the goodness of fit between Models 2 and 1 constituted a test of metric invariance over time. Model 3 included the restrictions from Model 2 plus the additional constraint of equal internal consistency (same quality of measures) over time (i.e., equivalence of residual variance). Model 4 was identical to Model 3 except for the additional constraint of invariant intercepts imposed across measurement points for like items. A comparison between Models 4 and 3 tested the scalar invariance over time. Model 5 imposed the additional constraint of invariant construct variances over time (i.e., the equivalence of factor variance). Finally, Model 6 was the most restrictive model tested, since it included the further constraint of invariant latent means over time (i.e., equivalence of factor means).

Invariance is tested by comparing the goodness of fit statistics of a particular model with a model having additional constraints. In order to evaluate overall model fit, the following indices were used: Comparative Fit Index (CFI, Bentler, 1990) with a cutoff value close to .95, the root mean square error of approximation (RMSEA, Steiger, 1990) with a cutoff value close to .06, and the standardized root mean square residual (SRMR, Hu & Bentler, 1998) with a cutoff value close to .09. In order to take into account the slight non-normality of the sample data, maximum likelihood parameter estimates with robust standard errors and mean-adjusted chi-square test statistics (S-B  $\chi^2$ ) were used for analyzing mean and covariance structures (Satorra & Bentler, 1994). To calculate  $\Delta$  S-B  $\chi^2$ , parallel analyses with both robust estimators and ordinary maximum likelihood estimates were run. For assessing comparative model fit, the chi-square difference tests with the Satorra-Bentler scaled chi-square were performed using the method described by Satorra (2000). The equality constraints are supported if the  $\chi^2$ -test produces a non-significant loss of fit for the constrained model as compared to the unconstrained model. The amount of change in latent factor means over time was assessed by calculating Cohen's *d*.

After the assumption that the variables under study do not differ in meaning from one measurement point to another was tested by LCFAs, it was possible to proceed to the classification of students.

### 2.6.3 Latent profile analysis

Regarding motivational profiles, latent profile analysis (LPA) was used to identify students with similar patterns of achievement goal orientations. LPA is a probabilistic or model-based variant of traditional cluster analysis (see Muthén & Muthén, 2000; Muthén, 2001; Vermunt & Magidson, 2002). Model-based methods have the advantage that more rigorous methods can be applied for the comparison of alternative models (Vermunt & Magidson, 2002). LPA is a latent

variable modeling technique that is known by a variety of names in the literature, for example, latent class cluster analysis and finite mixture modeling. The term “mixture” refers to the assumption that the data are not being sampled from a population that can be described by a single probability distribution, but instead, from a population composed of a mixture of distributions, one for each subgroup. Mixture modeling is “modeling with categorical latent variables that represent subpopulations where population membership is not known but is inferred from the data” (Muthén & Muthén, 1998–2004, p. 111). The subgroups are referred to as latent profiles or latent classes. When latent variable mixture modeling is used with only continuous latent class indicators, it is often referred to as LPA. When only categorical variables are used, the technique is often called latent class analysis (LCA, Muthén, 2001).

LPA can be compared to factor analysis, the goal of which is to find the smallest number of *factors* (continuous latent variables) that can explain the relationships among a set of observed variables. The goal of LPA, in turn, is to identify the smallest number of *groups* of individuals (categorical latent variables) that adequately explain the relationships among the observed continuous variables. Each of these categories includes individuals who are similar to each other and different from the individuals in other categories (Muthén & Muthén, 2000). In contrast to factor analysis, LPA also provides classification of individuals. The final number of latent classes and the sizes of the classes are not known prior to analysis. Instead, LPA provides fit indices that enable a comparison between different models and decision-making regarding the number of underlying classes. In the analyses, classes are added stepwise until the model optimally fits the data.

In this dissertation, LPAs were conducted in order to investigate what patterns of achievement goal orientations students show and how big a proportion of students show a particular pattern. The analyses were performed using the *Mplus* program (Muthén & Muthén, 1998–2004, 1998–2006), Versions 3.01 (Studies I and II) and 4.2 (Study III). LPAs were conducted using the composite scores of the five scales assessing achievement goal orientations.

There is no single commonly accepted statistical indicator for deciding on the number of classes in a study population (Nylund, Asparouhov, & Muthén, 2007); instead, researchers use a combination of criteria to guide the decision on the number of classes. Usually, the use of the Bayesian Information Criterion (BIC) is considered a good indicator for class enumeration. In the present study, BIC together with Vuong–Lo–Mendell–Rubin (VLMR) and/or adjusted Lo–Mendell–Rubin likelihood ratio tests were used as the statistical criteria. A decrease in BIC when an additional class is added is indicative of a better model fit. The VLMR and LMR tests (Lo, Mendell, & Rubin, 2001) compare the improvement in fit between neighbouring class models (i.e., comparing  $k - 1$  and the  $k$



class models). Resulting  $p$  values can be used to determine whether there is a statistically significant improvement in fit for the inclusion of one more class. Consequently,  $p$  values less than .05 indicate that the estimated model ( $k$ ) is preferable to the reduced model ( $k - 1$ ). In addition to the above mentioned statistical criteria, classification quality (i.e., entropy value), the usefulness and interpretability of the latent classes (e.g., the number of individuals in each class, mean patterns of classes) in the solutions, as well as the reasonableness of the solutions in relation to theory and prior research were considered to be criteria for choosing the best-fitting model (see Marsh, Ludtke, Trautwein, & Morin, 2009; Pastor et al., 2007).

After the decision regarding the final model has been made, individuals are classified into clusters. To do this, the probabilities of belonging in each class are first calculated for each individual. In contrast to traditional cluster analysis, an observation is not a member of a class with certainty in latent class models. A probabilistic clustering approach means that, although each observation is assumed to belong to one class, uncertainty about the class membership is taken into account (Vermunt & Magidson, 2002). LPA estimates the probability that each observation falls into each class; in other words, each individual is allowed fractional class membership. Posterior probabilities are also used to calculate the classification table and entropy statistics, both of which are used in assessing the classification utility of the model. In a classification table, for each observation, the sum of the probabilities across classes equals one (for average individual posterior probabilities for being assigned to a specific latent class, see Appendix C of Study II and Appendix B of Study III). The entropy statistic captures the information of the classification table. It ranges from 0 to 1 with higher values indicative of higher classification utility. The entropy statistic can be used to compare the classification utility of different models fitted to the same sample. After the posterior probabilities are calculated, a common method of assigning individuals to clusters is modal assignment, where assignment is made to the cluster associated with the largest of the posterior probabilities. Although in LPA the modal assignment of individuals to clusters results in a person being classified in only one cluster, the entropy statistic and classification table can be used to examine the degree to which this classification is accurate.

LPA studies class membership in cross-sectional data, but my aim in Studies II and III was also to investigate the development of individual patterns across time. For this purpose, the I-States as Objects Analysis (ISOA) procedure (Bergman & El-Khoury, 1999; Bergman et al., 2003, 2012; Bergman & Nurmi, 2010) was utilized, which is a person-centred methodology for studying short-term developmental stability and change in patterns of variable values. ISOA is based on longitudinal data with the same set of variables measured at all time points. The I-state is defined as an individual's pattern of values at a specific measure-



ment point in the variables that are to be used for classification. It is assumed in ISOA that approximately the same classification structure applies at all measurement points, even though individuals might change the typical pattern they belong to and the frequencies of the typical patterns may vary between measurement points (Bergman & Nurmi, 2010). According to this procedure, the patterns of the variables can first be identified ignoring the exact time when they emerged; this classification can then be used to study stability and change (Bergman et al., 2003). The time-invariant classification structure makes the findings clearer and more interpretable (Bergman et al., 2012). ISOA is particularly optimal for studying short-term development (Bergman et al., 2003, 2012). Also, some earlier studies have used a similar perspective to identify the cluster membership in longitudinal data (Janson & Mathiesen, 2008; Lerkkanen, Rasku-Puttonen, Aunola, & Nurmi, 2004; Nurmi & Aunola, 2005).

In Studies II and III, the longitudinal data were first reorganized in such a way that the data for each student for both measurement points were coded as a separate case. In other words, the data consisted of all I-states for all individuals (i.e., each individual occurred twice in the new data set). Next, for this new data, a series of LPAs was carried out. Finally, the data (cluster membership) were reorganized in such a way that the data for each student at both measurement points were again handled as two successive measurements of the same individual. After clustering, group membership was then used as the basic unit of analysis for studying associations with other domains as well as development.

#### **2.6.4 Configural frequency analysis**

In order to examine the stability of and changes in achievement goal orientation group memberships over time in Studies II and III, a configural frequency analysis (Bergman et al., 2003; von Eye, 1990a, 1990b; von Eye, Spiel, & Wood, 1996) was carried out. Herein, configural frequency analysis is abbreviated CONFA, in order to differentiate it from confirmatory factor analysis (CFA). “Configuration” refers to a theoretically possible value combination, and “frequency” refers to how frequent a specific configuration is. CONFA is of interest whenever the researcher asks questions concerning the frequencies in individual cells and groups of cells. CONFA compares the observed frequencies to the expected frequencies in a cross-tabulation and asks whether cell frequencies are larger or smaller than could be expected based on some chance model. In the present study, the base model selected for frequency comparison was the first order CONFA, which assumes that all variables under study may show main effects and are totally independent of each other (von Eye, 1990a; von Eye et al., 1996). This model is also called the model of variable independence or the base model of classical CONFA. If variable associations exist, types and antitypes will

emerge. Cells that contain more cases than expected constitute *types*, while cells that contain fewer cases than expected constitute *antitypes*. Cells with observed frequencies that do not differ from their expected frequencies beyond chance are typically not the focus of interpretational efforts. CONFAs were implemented by Configural Frequency Analysis, Program Version 2000. For the analyses, the Bonferroni method was used for alpha adjustment.

In Studies II and III, the questions were, on the one hand, whether there are any specific classes (i.e., achievement goal orientation groups) that individuals tend to stay in more frequently than would be expected by chance alone (i.e., individual stability), and, on the other hand, whether there is movement between classes that cannot be ascribed to chance fluctuations (i.e., individual change). In line with the person-centred emphasis of the present study, types and antitypes identified by CONFA describe *people* with certain patterns of characteristics. According to von Eye (1990a, p. 547), CONFA “moves away from a focus on identifying the association structure of variables and towards a focus on individuals with specific configurations of characteristics”.

## **2.6.5 Analyses of variance and covariance**

In all of the original studies, a series of analyses of variance (ANOVA) was performed in order to validate the goal orientation grouping and examine in detail how the classified groups differ across both clustering variables (i.e., achievement goal orientations) and other, external variables (i.e., criterion variables that were not used to determine cluster membership). The examination of the relationships between cluster membership and external variables is often performed to offer validity evidence for the cluster solution (see Pastor et al., 2007). One way to do this is to use ANOVA with each external variable serving as the dependent variable and cluster membership as the independent variable. In the present study, after having established the different achievement goal orientation profiles, one-way ANOVAs were conducted in order to examine how students with different motivational profiles differed with respect to achievement goal orientations (Studies I, II, and III), general well-being (Study I), academic well-being (Studies I, II, and III), motivational indices (Studies I and II), and academic achievement (Studies I and II). In Studies II and III, ANOVAs were performed separately for the two measurement points. Additionally, in Study III, it was investigated how the changes in goal orientation profiles from Time 1 to Time 2 were related to academic well-being. For that purpose, and to control for the influence of Time 1 well-being, two-way (Change in Goal Orientation Group  $\times$  Educational Track) ANCOVAs with Time 1 well-being measures as covariates were conducted. ANOVAs and ANCOVAs were implemented by SPSS (Versions 15–17) or PASW 18.



### **3 OVERVIEW OF THE ORIGINAL STUDIES**

The overall aim of this dissertation was to examine motivation and well-being among students facing educational transitions utilizing a person-centred approach. The dissertation consists of three empirical studies, each of which focused on examining students' achievement goal orientation profiles and profile differences in academic and socio-emotional functioning. Studies II and III also investigated the temporal stability of achievement goal orientation profiles. The main results of Studies I–III are summarized in Table 2.

**Table 2.** Summary of the main results: Achievement goal orientation profiles, temporal stability, and academic and socio-emotional outcomes.

Study	Profiles	Stability and change in profiles
<b>Pilot study</b>	<ul style="list-style-type: none"> <li>• Non-committed (46%)</li> <li>• Avoidance-oriented (28%)</li> <li>• Performance-oriented (15%)</li> <li>• Learning-oriented (11%)</li> </ul>	–
<b>Study I</b>	<ul style="list-style-type: none"> <li>• Indifferent (33%)<sup>a</sup></li> <li>• Mastery-oriented (24%)<sup>a</sup></li> <li>• Performance-oriented (18%)<sup>a</sup></li> <li>• Success-oriented (10%)<sup>a</sup></li> <li>• Disengaged (9%)<sup>a</sup></li> <li>• Avoidance-oriented (6%)<sup>a</sup></li> </ul>	–
<b>Study II</b>	<b>Substudy IIa:</b> <ul style="list-style-type: none"> <li>• Indifferent (39%)</li> <li>• Success-oriented (31%)</li> <li>• Mastery-oriented (18%)</li> <li>• Avoidance-oriented (12%)</li> </ul>	<ul style="list-style-type: none"> <li>• Motivational profiles were substantially stable both within a school year and between school years.</li> <li>• In Substudy IIa, 57% of lower secondary school students displayed identical motivational profiles over the four last months of 9th grade, 40% of students moved to a neighbouring group, 3% of students reported clear, unfavourable change, and 1% of students reported clear, favourable change in their motivational profile.</li> </ul>
	<b>Substudy IIb:</b> <ul style="list-style-type: none"> <li>• Indifferent (34%)</li> <li>• Mastery-oriented (36%)</li> <li>• Success-oriented (10%)</li> <li>• Avoidance-oriented (20%)</li> </ul>	<ul style="list-style-type: none"> <li>• In Substudy IIb, 60% of upper secondary school students displayed identical motivational profiles over the 2nd and 3rd years, 32% of students moved to a neighbouring group, 6% of students reported clear, unfavourable change, and 3% of students reported clear, favourable change in their motivational profile.</li> </ul>
<b>Study III</b>	<ul style="list-style-type: none"> <li>• Indifferent (36%)</li> <li>• Success-oriented (36%)</li> <li>• Mastery-oriented (21%)</li> <li>• Avoidance-oriented (7%)</li> </ul>	<ul style="list-style-type: none"> <li>• Motivational profiles were relatively stable across the transition to upper secondary education.</li> <li>• Half of the students displayed identical motivational profiles across the transition, 46% of students moved to a neighbouring group, 2% of students reported clear, unfavourable change, and 2% of students reported clear, favourable change in their motivational profile.</li> </ul>

Note. <sup>a</sup> The percentage values differ slightly from those presented in the original article, because there, missing values were included in the calculation of the percentages.

### Profile differences in academic and socio-emotional functioning

- Non-committed students represented a typical student in the sample with average scores on almost all motivational and well-being variables.
- Avoidance-oriented students showed the most maladaptive pattern and learning-oriented students showed the most adaptive pattern of motivation and well-being.
- Performance-oriented students displayed a rather adaptive pattern of motivation and well-being, but they were more externally motivated than learning-oriented students.

- Mastery-oriented students showed the most adaptive pattern of general and academic well-being, and they were also doing well in school.
- Success-oriented students were committed to studying and succeeding in school, but they were somewhat stressed and emotionally exhausted.
- Avoidance-oriented students showed the most maladaptive pattern of motivation and well-being.
- Disengaged students were not stressed or exhausted, despite their maladaptive motivational profile.

#### Substudies IIa and IIb:

- Both mastery- and success-oriented students displayed high school value and succeeded very well in school, but success-oriented students were more preoccupied with possible failures in school compared to mastery-oriented students.
- Indifferent and avoidance-oriented students displayed lower school value than did mastery- and success-oriented students.
- Avoidance-oriented students showed the most maladaptive pattern of motivation and had the poorest academic achievement.
- In Substudy IIa, mastery-oriented students reported the lowest level of academic withdrawal, while in Substudy IIb, mastery- and success-oriented students reported equally low academic withdrawal.

- Both mastery- and success-oriented students were highly engaged in studying and found their schoolwork meaningful, although success-oriented students' stronger concerns with performance made them more vulnerable to school burnout.
- Indifferent and avoidance-oriented students showed less adaptive patterns of motivation and academic well-being than did mastery- and success-oriented students.
- Students who exhibited a stable, favourable (mastery- or success-oriented) profile and students who displayed adaptive change in their profile expressed higher engagement and satisfaction with educational choice than the other students. Students who displayed maladaptive change in their profile expressed more cynicism than most of their peers.

### 3.1 Study I

**Tuominen-Soini, H., Salmela-Aro, K., & Niemivirta, M. (2008). Achievement goal orientations and subjective well-being: A person-centred analysis. *Learning and Instruction*, 18, 251–266. doi:10.1016/j.learninstruc.2007.05.003**

The aim of Study I was to examine what kinds of achievement goal orientation profiles can be identified among lower and upper secondary school students and how students with different goal orientation profiles differ with respect to self-esteem, depressive symptoms, school burnout, education-related personal goal appraisals, and academic achievement.

The participants were a total of 1321 adolescents; 707 about 15-year-old lower secondary school students (332 girls, 367 boys; 8 did not report gender) and 614 about 17-year-old general upper secondary school students (376 girls, 237 boys; 1 did not report gender). Preliminary analyses of structural validity were conducted using confirmatory factor analysis. Following the person-centred emphasis of the study, the students were classified according to their achievement goal orientation profiles by means of latent profile analysis. ANOVAs were conducted in order to examine group differences.

The CFA model with minor modifications fit the data well, indicating the structural validity of achievement goal orientations and well-being. As to clustering students, six groups of students with unique motivational profiles were identified: indifferent, mastery-oriented, performance-oriented, success-oriented, disengaged, and avoidance-oriented. *Indifferent* students (30%) had scores close to the sample mean on all achievement goal orientations. They represented a typical student in the sample with no specific emphasis on any achievement goal orientation. Indifferent students had average scores on general well-being and school burnout, but regarding commitment and progress in relation to their educational goal, they scored as low as the disengaged and avoidance-oriented students.

*Mastery-oriented* students (22%) emphasized learning, yet they also stressed the importance of getting good grades. Mastery-oriented students reported relatively high self-esteem and rather low levels of depressive symptoms, cynicism toward the meaning of school, and sense of inadequacy as a student. Also, high levels of commitment, effort, and progress in relation to their educational goals characterized this group. *Performance-oriented* students' (17%) focus was on outperforming other students and trying to avoid appearing incompetent. Compared to mastery-oriented students, performance-oriented students reported lower self-esteem and higher levels of depressive symptoms, cynicism, and inadequacy. Compared to success-oriented students, performance-oriented students were slightly less committed to their educational goals and had lower academic

achievement. *Success-oriented* students (9%) were mainly characterized by striving for getting good grades and outperforming others, although they considered the goal of learning important as well. Success-oriented students were highly committed to their educational goals, and they had the highest academic achievement, but they were somewhat stressed and emotionally exhausted by their study demands.

*Disengaged* students (9%) scored relatively low on all orientations. Even though disengaged students scored rather low on commitment, effort, and progress, they displayed less general distress and less stress about their future aspirations than most of their more committed peers. The *avoidance-oriented* students' (6%) main goal was to minimize the effort and time spent on studying. Also, they scored the lowest on mastery-intrinsic orientation. Avoidance-oriented students displayed rather low self-esteem and high levels of depressive symptoms and school-related cynicism, and they scored relatively low on commitment, effort, and progress in relation to their educational goals.

The results showed that students' tendencies to select certain goals or favour certain outcomes were related to their well-being. Goals related to self-improvement and growth were positively associated with various indices of well-being, whereas avoidance tendencies and concerns with validating or demonstrating one's competence were linked with different types of adjustment problems. Overall, problems of motivation and well-being appeared to cluster in a minority of adolescents. The findings demonstrate the importance of including measures of well-being when evaluating the role of achievement goal orientations in learning and achievement.

## 3.2 Study II (Substudies IIa and IIb)

**Tuominen-Soini, H., Salmela-Aro, K., & Niemivirta, M. (2011). Stability and change in achievement goal orientations: A person-centered approach. *Contemporary Educational Psychology*, 36, 82–100. doi:10.1016/j.cedpsych.2010.08.002**

In Study II, two separate longitudinal studies (referred to as Substudy IIa and Substudy IIb, respectively) examined the stability and change in students' achievement goal orientations and in achievement goal orientation profiles within a school year and between school years. Additionally, in order to describe further the characteristics of the motivational profiles, we investigated how students with different profiles differ with respect to school value, fear of failure, academic withdrawal, and academic achievement.

In Substudy IIa, the participants were 530 about 15-year-old ninth-grade students (269 girls and 261 boys) who completed questionnaires twice during the ninth grade (the measurement period was approximately 4 months). In



Substudy IIb, the participants were 519 about 17-year-old general upper secondary school students (336 girls and 183 boys) who completed questionnaires once during the second year of general upper secondary school and again during the third year (the measurement period was approximately 12 months). Analyses of structural and normative stability were conducted using longitudinal confirmatory factor analysis. Following a person-centred approach, students with similar patterns of achievement goal orientations were identified through latent profile analysis. A configural frequency analysis was used to examine the stability of and changes in group memberships over time. Group differences were investigated by ANOVAs.

As to the structural and normative stability, the results of the LCFA indicated sufficient measurement invariance and considerable normative stability in achievement goal orientations over time in both substudies. Furthermore, in Substudy IIa, the latent factor means revealed small decreases in mastery-intrinsic, mastery-extrinsic, and performance-avoidance orientations during the ninth grade, while in Substudy IIb, the latent factor means revealed small decreases in mastery-extrinsic and performance-avoidance orientations and a slight increase in performance-approach orientation across the second and third years of general upper secondary school. Consequently, the latent factor means were not identical over time, yet the changes were small.

Distinct groups of students with different motivational profiles were found in both substudies with considerable consistency in student profiles across the two academic contexts. In other words, similar motivational profiles – indifferent, success-oriented, mastery-oriented, and avoidance-oriented – were found in both studies. The *indifferent* group (Substudy IIa: 39%; Substudy IIb: 34%) represented a typical student who acknowledges the goal of mastering school subjects and the importance of grades, but is somewhat reluctant to invest in the attainment of those goals. Indifferent students demonstrated relatively low school value and rather high fear of failure. They had higher academic achievement than avoidance-oriented students. *Mastery-oriented* students (Substudy IIa: 18%; Substudy IIb: 36%) emphasized learning and strove for goals implying self-improvement and also absolute success. Relatively high levels of school value and academic achievement and relatively low levels of fear of failure and academic withdrawal characterized this group as well. *Success-oriented* students (Substudy IIa: 31%; Substudy IIb: 10%) were characterized by their aspiration for absolute and relative success and also for learning and understanding. They demonstrated high levels of school value and succeeded very well in school, but compared to the other favourable motivational group of mastery-oriented students, they were more preoccupied with possible failures in school. The main goal of *avoidance-oriented* students (Substudy IIa: 12%; Substudy IIb: 20%) was to minimize the time and effort spent on studying; consequently, they showed

the most maladaptive pattern of motivation. They had the poorest academic achievement, and they demonstrated relatively low school value. Avoidance-oriented students were not particularly worried about failing in school, which can be seen as a sign of a certain kind of passivity.

The students' motivational profiles were substantially stable, both within a school year and between school years. In both substudies, application of CONFA revealed four types: the four cells corresponding to individuals belonging to the same class across the two measurement points showed significant types (see Table 3). In Substudy IIa, 57% of the students displayed a stable motivational profile over the four last months of ninth grade. In Substudy IIb, around 60% of the students displayed a stable motivational profile across the second and third years of general upper secondary school, that is, during one year. The majority of the changes that did occur in group memberships were directed towards groups with fairly similar motivational profiles, and there were only few clear changes. In Substudy IIa, five antitypes were revealed. It was untypical for indifferent students to move to the success- or mastery-oriented groups, and success-oriented students were unlikely to move to the avoidance-oriented group. Further, it was untypical for mastery-oriented students to move to the indifferent group and for avoidance-oriented students to move to the success-oriented group. In Substudy IIb, six antitypes were revealed. It was untypical for indifferent students to move to the success- or mastery-oriented groups, and success-oriented students were unlikely to move to the avoidance-oriented group. Moreover, it was untypical for mastery-oriented students to move either to the indifferent or avoidance-oriented groups, while avoidance-oriented students were unlikely to move to the mastery-oriented group.

**Table 3.** Stability of and changes in goal orientation group memberships over time and statistical types and antitypes revealed in Studies II and III.

**Substudy IIa**  $\chi^2(9, N = 530) = 274.59, p < 0.001$

	T2 Indifferent	T2 Success-oriented	T2 Mastery-oriented	T2 Avoidance-oriented	Total
T1 Indifferent	N=124, 60.8% TYPE	N=22, 10.8% ANTITYPE	N=20, 9.8% ANTITYPE	N=38, 18.6%	N=204 100%
T1 Success-oriented	N=55, 29.4%	N=99, 52.9% TYPE	N=26, 13.9%	N=7, 3.7% ANTITYPE	N=187 100%
T1 Mastery-oriented	N=15, 16.7% ANTITYPE	N=17, 18.9%	N=49, 54.4% TYPE	N=9, 10.0%	N=90 100%
T1 Avoidance-oriented	N=17, 34.7%	N=3, 6.1% ANTITYPE	N=1, 2.0%	N=28, 57.1% TYPE	N=49 100%
% within T1	N=211, 39.8%	N=141, 26.6%	N=96, 18.1%	N=82, 15.5%	N=530

**Substudy IIb**  $\chi^2(9, N = 519) = 307.56, p < 0.001$

	T2 Indifferent	T2 Success-oriented	T2 Mastery-oriented	T2 Avoidance-oriented	Total
T1 Indifferent	N=110, 62.5% TYPE	N=3, 1.7% ANTITYPE	N=37, 21.0% ANTITYPE	N=26, 14.8%	N=176 100%
T1 Success-oriented	N=10, 18.5%	N=26, 48.1% TYPE	N=16, 29.6%	N=2, 3.7% ANTITYPE	N=54 100%
T1 Mastery-oriented	N=34, 17.4% ANTITYPE	N=20, 10.3%	N=114, 58.5% TYPE	N=27, 13.8% ANTITYPE	N=195 100%
T1 Avoidance-oriented	N=18, 19.1%	N=2, 2.1%	N=15, 16.0% ANTITYPE	N=59, 62.8% TYPE	N=94 100%
% within T1	N=172, 33.1%	N=51, 9.8%	N=182, 35.1%	N=114, 22.0%	N=519

**Study III**  $\chi^2(9, N = 579) = 143.04, p < 0.001$

	T2 Indifferent	T2 Success-oriented	T2 Mastery-oriented	T2 Avoidance-oriented	Total
T1 Indifferent	N=108, 52.4% TYPE	N=49, 23.8%	N=27, 13.1% ANTITYPE	N=22, 10.7%	N=206 100%
T1 Success-oriented	N=60, 26.9%	N=113, 50.7% TYPE	N=43, 19.3%	N=7, 3.1%	N=223 100%
T1 Mastery-oriented	N=28, 25.9%	N=21, 19.4%	N=57, 52.8% TYPE	N=2, 1.9%	N=108 100%
T1 Avoidance-oriented	N=19, 45.2%	N=5, 11.9%	N=8, 19.0%	N=10, 23.8% TYPE	N=42 100%
% within T1	N=215, 37.1%	N=188, 32.5%	N=135, 23.3%	N=41, 7.1%	N=579

### 3.3 Study III

**Tuominen-Soini, H., Salmela-Aro, K., & Niemivirta, M. (2012). Achievement goal orientations and academic well-being across the transition to upper secondary education. *Learning and Individual Differences*, 22, 290–305. doi:10.1016/j.lindif.2012.01.002**

Study III focused on the developmental dynamics between motivation and academic well-being across the transition from comprehensive school to upper secondary education. The aim was to examine students' achievement goal orientation profiles, the temporal stability of these profiles across the transition, and profile differences in school burnout, schoolwork engagement, school value, and satisfaction with educational choice.

The participants were 579 about 15-year-old students (288 girls and 291 boys) who completed questionnaires once during the ninth grade and once during the first year of upper secondary education (the measurement period was 12 months). Students with similar patterns of achievement goal orientation were identified through latent profile analysis. A configural frequency analysis was used to examine the stability of and changes in group memberships over time. ANOVAs were conducted in order to examine how students with different goal orientation profiles differ with respect to academic well-being. In addition, parallel changes in achievement goal orientations and academic well-being were investigated, first, by creating a variable reflecting change in the goal orientation group and then by using ANCOVAs.

The results of the longitudinal confirmatory factor analyses indicated sufficient measurement invariance and quite substantial normative stability in achievement goal orientations over time. Furthermore, the latent factor means revealed slight decreases in mastery-extrinsic and performance-avoidance orientations and a slight increase in mastery-intrinsic orientation across the transition.

As to the grouping of students, four groups of students with distinct motivational profiles were identified: indifferent, success-oriented, mastery-oriented, and avoidance-oriented. As much as 36% of the students belonged to the *indifferent* group, which can be seen as representing a typical student with a joint, yet weak, emphasis on mastery, performance and avoidance. Indifferent students scored relatively low on school value, as well as on schoolwork engagement and satisfaction with educational choice after the transition. In addition, they scored rather high on cynicism and inadequacy. *Success-oriented* (36%) students strove for both absolute and relative success, yet they also emphasized the importance of learning and understanding. Success-oriented students reported relatively high levels of school value, engagement in relation to schoolwork, and satisfaction with their educational choice after the transition. However, having a strong-

er concern for validating their competence, success-oriented students were more likely than mastery-oriented students to report exhaustion, cynicism, and inadequacy at school. *Mastery-oriented* (21%) students emphasized learning and strove for goals implying self-improvement and growth, but succeeding in school was also an important goal for them. These students reported high levels of school value and both satisfaction with their educational choice and engagement after the transition. Mastery-oriented students were also characterized by the lowest levels of both cynicism and a sense of inadequacy compared to the other students. *Avoidance-oriented* (7%) students deliberately aimed at minimizing the time and effort spent on studying; consequently, they showed the most maladaptive pattern of motivation and academic well-being. These students were characterized by relatively low levels of school value, engagement, and satisfaction with educational choice as well as by relatively high levels of both cynicism and inadequacy. Regarding exhaustion at school, avoidance-oriented students scored as low as mastery-oriented students. To sum up, regarding group differences, indifferent and avoidance-oriented students showed less adaptive patterns of motivation and academic well-being than did mastery- and success-oriented students.

The motivational profiles were relatively stable across the transition to upper secondary education; approximately half of the students showed identical motivational profiles over time, most of the changes that did occur in the group memberships were directed towards neighbouring groups, and there were only few clear changes. The application of CONFA revealed four types and one anti-type (see Table 3). The four cells corresponding to individuals belonging to the same class at both measurement points showed significant types. Further, it was untypical for indifferent students to move to the mastery-oriented group.

The parallel changes in achievement goal orientations and academic well-being were also examined across the transition.<sup>3</sup> For this purpose, a new variable reflecting change in goal orientation group over time was created (i.e., stable indifferent, stable success-oriented, stable mastery-oriented, adaptive change, maladaptive change).<sup>4</sup> The results showed, for example, that students in adaptive change, stable mastery-oriented, and stable success-oriented groups demon-

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<sup>3</sup> The educational track was included as an independent variable in the ANCOVAs to control for its possible effect. The results show that the educational track does not play a crucial role here; the only significant effects were with respect to burnout variables, and the effect sizes were scientifically trivial. Students on the academic track scored slightly higher on school burnout compared to students on the vocational track.

<sup>4</sup> Since there were only ten students who stayed in the avoidance-oriented group over time and since avoidance-oriented students resembled indifferent students in many respects in earlier ANOVAs, these ten students were included in the stable indifferent group.

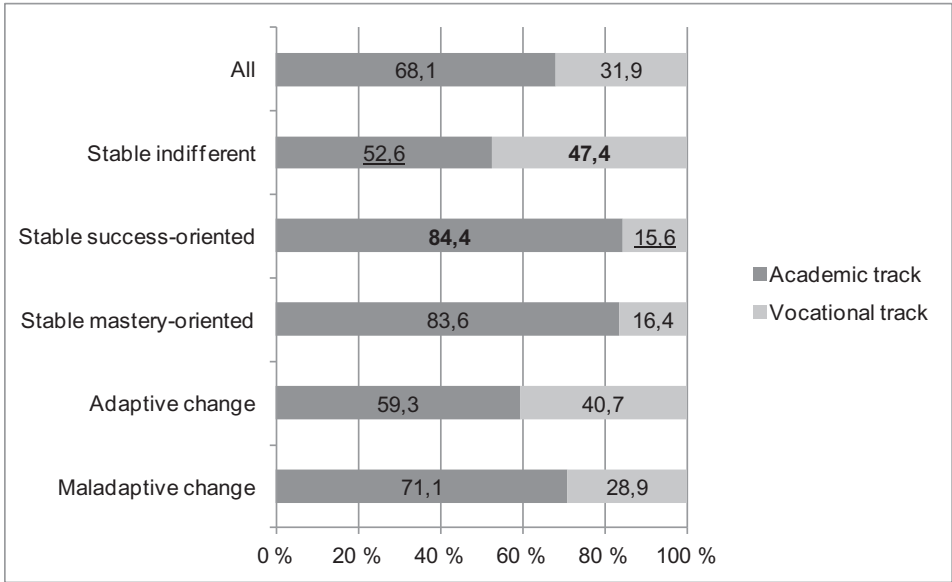
strated higher school value than students in stable indifferent, and maladaptive change groups. Also, students in the maladaptive change group expressed relatively high cynicism and inadequacy. After the transition, students who exhibited a stable, favourable (i.e., mastery- or success-oriented) motivational profile and students who showed adaptive change in their profile scored higher than the other students on schoolwork engagement and satisfaction with educational choice.

For the purposes of this dissertation, I also investigated by means of CONFA how the change in goal orientation group during the transition and educational track after the transition are related (not reported in the original article). Change in goal orientation group and educational track provided ten possible configurations. Application of CONFA ( $\chi^2(4, N = 546) = 37.56, p < 0.001$ ) revealed two types and two antitypes (see Table 4). For students who belonged to the stable indifferent group, it was typical to choose the vocational track and untypical to choose the academic track (see Figure 5). By contrast, for students who belonged to the stable success-oriented group, it was typical to choose the academic track and untypical to choose the vocational track. Although not just showing a statistically significant type or antitype, it still seems that students who display an adaptive change in their motivational profile over time are slightly more likely to choose the vocational track and not the academic track. When gender was also taken into account, change in goal orientation group, educational track, and gender provided twenty possible configurations, and application of CONFA ( $\chi^2(13, N = 546) = 62.09, p < 0.001$ ) revealed two types and one antitype (see Table 5). Interestingly, it was typical to be a boy belonging to the stable indifferent group and choose the vocational track and untypical to be a boy belonging to the stable success-oriented group and choose the vocational track. In addition, it was typical to be a girl belonging to the stable success-oriented group and choose the academic track.

**Table 4.** Configural frequency analysis on change in goal orientation group and educational track after the transition to upper secondary education (Study III).

CONFIGURATION		<i>OBS.</i>	<i>EXP.</i>	$\chi^2$	<i>p</i>
C/T					
T	1 1	54	36.33	3.88	.0001
A	1 2	60	77.67	-3.88	.0001
A	2 1	17	34.74	-3.96	.0000
T	2 2	92	74.26	3.96	.0000
	3 1	9	17.53	-2.45	.0072
	3 2	46	37.47	2.45	.0072
	4 1	37	40.79	-.71	.2380
	4 2	91	87.21	.71	.2380
	5 1	57	44.62	2.50	.0063
	5 2	83	95.39	-2.50	.0063

*Note.* C = Change in goal orientation group (1 = stable indifferent, 2 = stable success-oriented, 3 = stable mastery-oriented, 4 = maladaptive change, 5 = adaptive change); T = Track (1 = vocational track, 2 = academic track). A = antitype; T = type. Lehmachers test with continuity correction was used.



**Figure 5.** Students' educational track after the transition to upper secondary education as a function of change in goal orientation group (Study III). *Note.* Values in bold signify statistical types, underlined values signify statistical antitypes.

**Table 5.** Configural frequency analysis on change in goal orientation group, educational track after the transition to upper secondary education, and gender (Study III).

CONFIGURATION		<i>OBS.</i>	<i>EXP.</i>	$\chi^2$	<i>p</i>
T/C/G					
T	1 1 1	18	17.83	-.09	.4636
	1 1 2	36	18.50	4.62	.0000
	1 2 1	10	17.05	-1.84	.0331
A	1 2 2	7	17.69	-2.82	.0024
	1 3 1	5	8.60	-1.19	.1176
	1 3 2	4	8.92	-1.67	.0476
	1 4 1	13	20.02	-1.71	.0438
	1 4 2	24	20.77	.71	.2401
	1 5 1	28	21.90	1.41	.0788
	1 5 2	29	22.72	1.44	.0748
	2 1 1	28	38.12	-2.08	.0187
	2 1 2	32	39.55	-1.51	.0654
T	2 2 1	55	36.45	3.97	.0000
	2 2 2	37	37.81	-.07	.4728
	2 3 1	28	18.39	2.71	.0034
	2 3 2	18	19.08	-.17	.4322
	2 4 1	36	42.81	-1.30	.0965
	2 4 2	55	44.40	2.07	.0194
	2 5 1	47	46.82	-.06	.4747
	2 5 2	36	48.57	-2.39	.0085

Note. T = Track (1 = vocational track, 2 = academic track); C = Change in goal orientation group (1 = stable indifferent, 2 = stable success-oriented, 3 = stable mastery-oriented, 4 = maladaptive change, 5 = adaptive change); G = Gender (1 = girl, 2 = boy). A = antitype; T = type. Lehmachers test with continuity correction was used.

Overall, the results of Study III showed that some students go through the transition without any notable problems, and some even display increasing motivation and engagement, while only some students encounter declining motivation and different types of adjustment problems.





## 4 DISCUSSION

### 4.1 Main Findings

On the whole, the results of this dissertation demonstrate that students show various patterns of achievement goal orientations in lower and upper secondary education, that these patterns are relatively stable preceding and during educational transitions, and that these patterns are associated in meaningful ways with students' academic and socio-emotional functioning. In this chapter, I will discuss the main findings as well as the methodological and pedagogical implications of this study. In accordance with the main aims, the discussion focuses on the person-centred results, that is, on achievement goal orientation profiles, the temporal stability of these profiles, and academic and socio-emotional outcomes.

#### 4.1.1 Achievement goal orientation profiles

The first main aim of this dissertation was to examine the kinds of achievement goal orientation profiles that can be identified among lower and upper secondary school students. In line with the general assumptions and consistent with prior research utilizing a similar, multiple goals perspective (e.g., Meece & Holt, 1993; Niemivirta, 1998, 2002b; Tapola & Niemivirta, 2008; Tuominen et al., 2004; Veermans & Tapola, 2004), groups with a dominant tendency towards mastery (i.e., mastery-oriented students), performance (i.e., success-oriented and/or performance-oriented students), and avoidance (i.e., avoidance-oriented and/or disengaged students) were found. In addition, a group with no specific emphasis on any achievement goal orientation (i.e., indifferent students) was found, which is also congruent with some prior studies (Niemivirta, 2000; Tuominen et al., 2004).

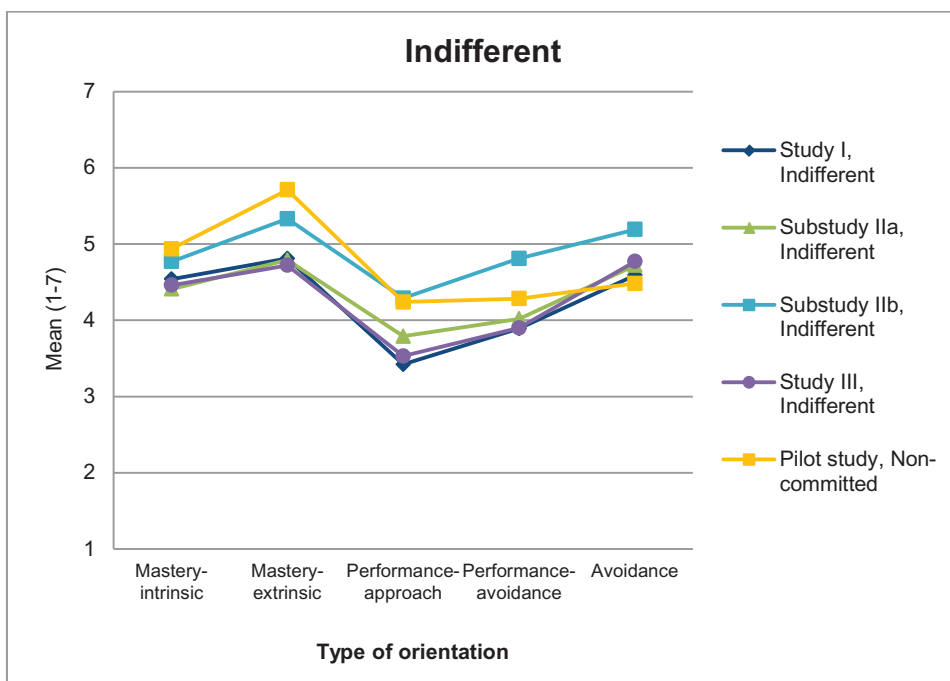
In the following section, I will describe one by one the characteristics of each goal orientation group identified. In addition, I will compare the results with prior and also later studies applying a similar approach. Because of the identical measures, similar analytical methods, and consistent results in all of the original studies, for the purposes of this dissertation, it was both possible and meaningful to merge the achievement goal orientation profiles of each corresponding goal orientation group into the same figure. Thus, Figures 6–9 present the achievement goal orientation profiles (based on raw mean scores) of indifferent students (Figure 6), success- and performance-oriented students (Figure 7), mastery-oriented students (Figure 8), and avoidance-oriented and disengaged students (Figure 9). In addition to the profiles identified in Studies I–III, these figures present the profiles identified in our pilot study (Tuominen et al., 2004), which

used identical achievement goal orientation measures and similar data analyses, but a different sample of students. It is important to note that there is some overlap in the participants of the original studies (see Chapter 2.3 and Figure 4), that is, the samples of the original studies are not totally independent.

#### **4.1.1.1 Indifferent students**

In all of the original studies, a group of students having a joint, yet weak, emphasis on mastery and performance and avoidance was identified. In other words, these students did not display a dominant tendency towards any specific achievement goal orientation. This group was labelled *indifferent* in order to describe the certain unwillingness of these students to commit to any specific goals and also to point to the fact that these students seemed to be in many respects “average” students. Indifferent students had scores close to the sample mean on all achievement goal orientations, which can be seen as a relatively “flat” profile in Figure 6 (see also the original studies for figures illustrating the profiles based on standardized mean scores). However, despite the joint emphasis on mastery, performance, and avoidance, the relative emphasis on avoidance orientation among these students actually seems to be rather strong, which becomes salient especially when viewing the figures presenting the profiles based on standardized mean scores.

As Figure 6 illustrates, the motivational profiles of indifferent students are substantially similar in Studies I–III, as well as in the pilot study (Tuominen et al., 2004). In the pilot study, this group was labelled non-committed and was clearly the largest. The fact that approximately one-third of the students belonged to the indifferent group in Studies I–III suggests that a “typical” secondary school student in Finland seeks to do what is expected and acknowledges the goals of learning and doing well in school, but is somewhat reluctant to invest in the attainment of those goals. This result concurs with prior studies in Finnish representative samples of ninth-graders and upper secondary students (Niemi-virta, 2000; Niemivirta & Järvelä, 2003). These prior studies also show that the level of avoidance orientation is rather high, both overall among Finnish students (Niemi-virta, 2000; Niemivirta & Järvelä, 2003) and among this kind of a large group of typical students (Niemi-virta, 2000). Therefore, the relatively strong emphasis found here on avoidance tendencies among indifferent students was not unexpected.



**Figure 6.** Indifferent students' mean scores on achievement goal orientation scales in Studies I–III and in the pilot study.

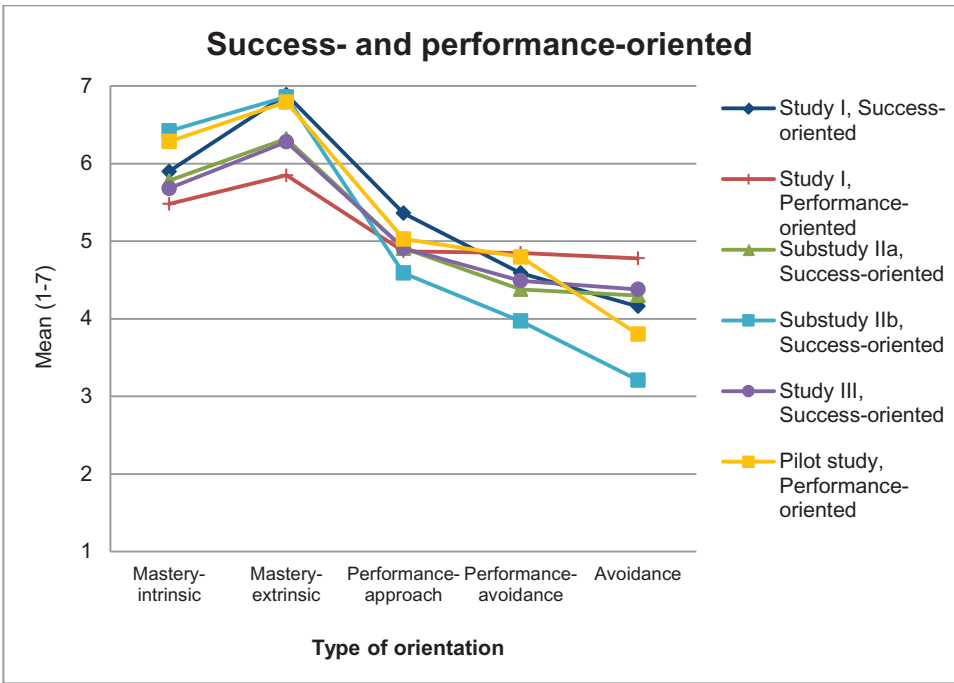
The results of the present study also echo the findings of Turner et al. (1998), who identified a group of uncommitted students (in the context of mathematics) who did not appear to be highly invested in either learning or performing well, but who still tried to conform to typical classroom expectations, for example, getting the answers right and using adaptive study strategies. It is important to note that indifferent students are not “without a goal orientation”; instead, they have competing preferences due to which no *single* achievement goal orientation is predominantly emphasized. In my view, it is not surprising to find such a large group of students with a joint emphasis on mastery, performance, and avoidance. Surely, competing – or even seemingly conflicting – tendencies are rather common among adolescents, especially in a school context where students seek both to follow personal interests and to respond to external demands and also at an age and in a life situation when there is a lot happening in their adolescent lives.

#### 4.1.1.2 Success-oriented and performance-oriented students

Consistent with the majority of prior and also more recent studies (see Appendix A), students emphasizing performance were found, which is, of course, natural in a school context. These students were labelled *success-oriented*. In Study I,

though, two performance-focused groups were identified, and they were labelled success-oriented and *performance-oriented* in order to describe the slight difference in the motivational aspirations of the two groups.

Success-oriented students expressed relatively high levels of mastery-extrinsic, mastery-intrinsic, and performance-approach orientations (see Figure 7). In other words, success-oriented students seemingly aimed for both absolute success (i.e., getting good grades) and relative success (i.e., outperforming others), although they considered the goal of learning and understanding important as well. It could be said that these students expressed mastery-focused tendencies along with performance-related concerns. Interestingly, the success-oriented students scored comparatively high on performance-avoidance orientation, suggesting a pattern of combined approach and avoidance tendencies (see also Luo et al., 2011). According to Covington and Omelich (1987), the so-called overstrivers are driven simultaneously by high hopes of success and by an excessive fear of failure. While striving for excellence and avoiding failure, overstrivers succeed in school, yet harbour self-doubts about the ability to succeed because the goal is perfection, not just mastery (Covington & Omelich, 1987). These overstrivers seem to have something in common with the success-oriented students identified in the present study.



**Figure 7.** Success- and performance-oriented students' mean scores on achievement goal orientation scales in Studies I-III and in the pilot study.

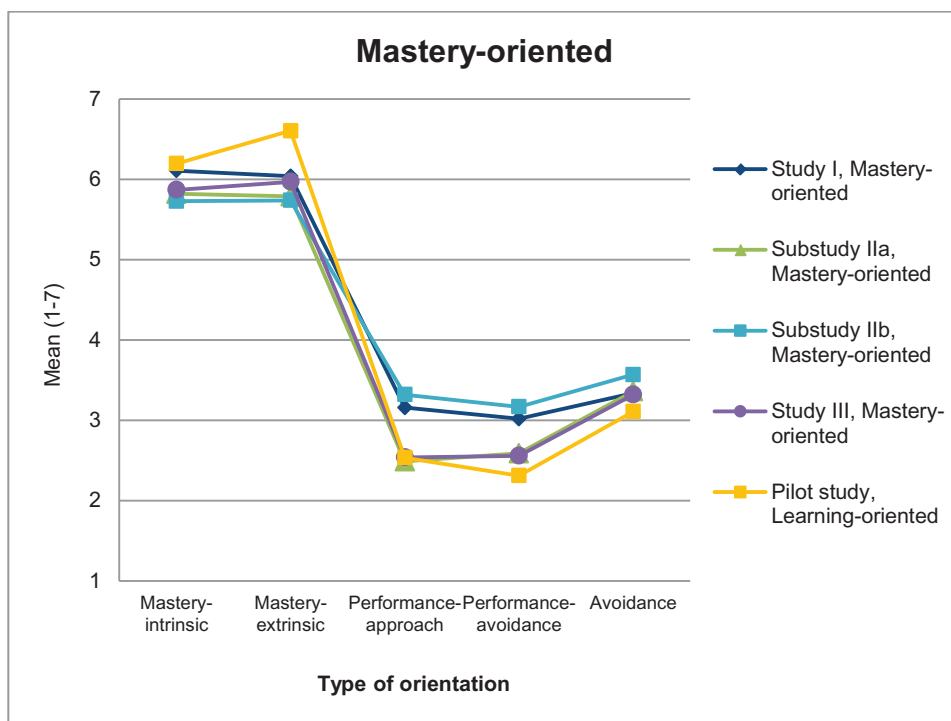
Success- and performance-oriented students had a common tendency to emphasize performance, but compared to success-oriented students, performance-oriented students (identified in Study I) scored slightly lower on mastery-intrinsic and mastery-extrinsic orientations and higher on avoidance orientation. Accordingly, their motivational profile was somewhat less favourable. Similarly, Tapola and Niemivirta (2008) found two performance-focused groups among sixth-graders; achievement-oriented students placed strong emphasis on both learning and performance orientations, while performance-oriented students emphasized performance and avoidance orientations.

Students emphasizing performance constituted a rather large group in every study; in Study I, success- and performance-oriented students combined included nearly 30% of the students. Similarly, success-oriented students constituted about one-third of the students in Substudy IIa as well as in Study III. In Substudy IIb (i.e., the general upper secondary sample), the group was smaller compared to the equivalent groups in the other studies, but very strongly oriented towards both succeeding in school and mastering school subjects. Also, they scored relatively low on performance-avoidance and avoidance orientations compared to the corresponding groups in the other studies. This difference supposedly stems from the fact that the general upper secondary school sample is selective, since only certain students opt for the academic track.

#### **4.1.1.3 Mastery-oriented students**

A group of students having a dominant tendency towards mastery was revealed in all of the original studies, which is in line with other research (see Appendix A). The achievement goal orientation profiles of *mastery-oriented* students identified in Studies I–III and in the pilot study are remarkably similar (see Figure 8). Mastery-oriented students had high scores in both mastery-intrinsic and mastery-extrinsic orientations; in other words, they emphasized learning and strove for goals implying self-improvement and growth, although succeeding in school was also important for them. Compared to the other students, mastery-oriented students had low scores on both performance-focused orientations as well as on avoidance orientation. Depending on the sample, approximately 20–30% of the students belonged to this group. In Substudy IIb, as much as 36% of students belonged to this group, suggesting that a typical student in general upper secondary school emphasizes learning and understanding.

Given that the primary schoolwork focus for these students was on mastery, improvement, and self-comparison, the joy of learning seemed to be important to them, and accordingly, their motivational profile appears very adaptive and favourable. These results are consistent with those of, for example, Meece and

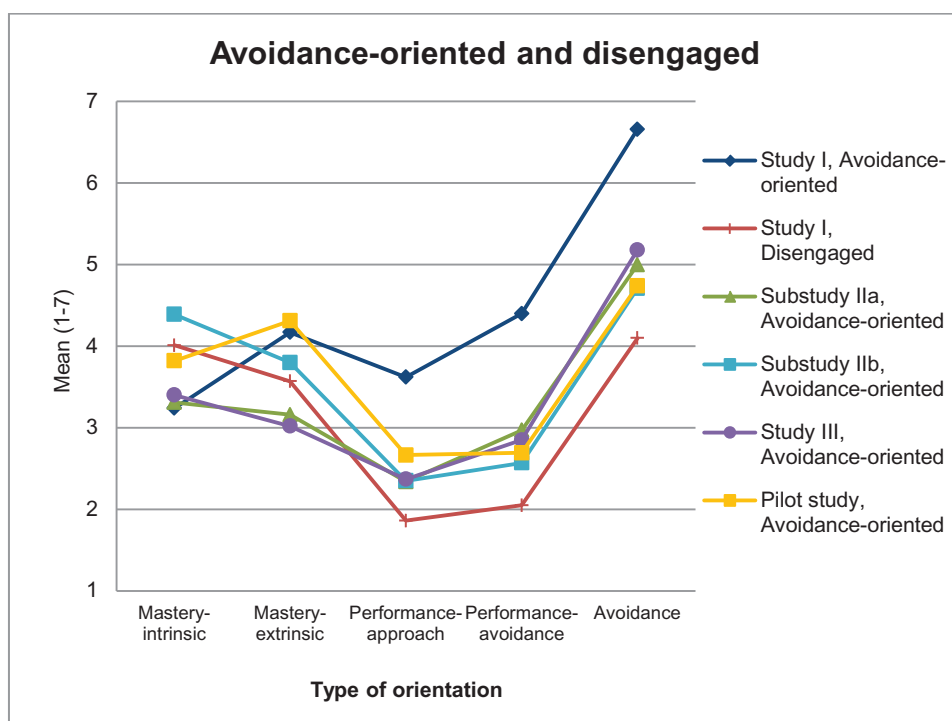


**Figure 8.** Mastery-oriented students' mean scores on achievement goal orientation scales in Studies I–III and in the pilot study.

Holt (1993) and Daniels et al. (2008) in demonstrating that students who report above-average endorsement of mastery goal orientation show the most positive profile.

#### 4.1.1.4 Avoidance-oriented and disengaged students

Finally, a group of students displaying a rather maladaptive motivational profile was found in all of the original studies. *Avoidance-oriented* students had relatively high scores on avoidance-orientation and, by contrast, low scores on mastery-intrinsic and mastery-extrinsic orientations. Their principal aim in school was to minimize the effort and time spent on studying. Thus, these students seemed to have little interest in school going and studying. In most cases this was the smallest group. Interestingly, in Study II, the avoidance-oriented group was larger in the general upper secondary school sample (Substudy IIb: 20%) compared to the lower secondary school sample (Substudy IIa: 12%). However, the upper secondary school students belonging to this group emphasized learning more and, thus, manifested a more favourable motivational profile than the avoidance-oriented students in lower secondary school (see Figure 9).



**Figure 9.** Avoidance-oriented and disengaged students' mean scores on achievement goal orientation scales in Studies I-III and in the pilot study.

In Study I, this group seemed to divide into two avoidance-focused groups with slightly different motivational profiles. *Disengaged* students scored relatively low on all achievement goal orientations, especially on both performance-approach and performance-avoidance orientations (see Figure 9). Hence, they did not emphasize learning or performance, nor did they seek to avoid achievement situations. The relatively low score on avoidance orientation is precisely the feature that differentiates these students from avoidance-oriented students. These students were labelled disengaged, because it appeared that they were not much engaged in their schoolwork. Alternatively, they may have been simply bored. It would be interesting to know whether this particular group represents the kind of students Seifert (2004) labelled “bright but bored”. In Study I, 9% of the students belonged to this group and, consequently, these rather passive groups of avoidance-oriented and disengaged students comprised about 15% of all the students, which is close to the number of avoidance-oriented students in the other original studies and consistent with some other studies (Kolić-Vehovec et al., 2008; Tapola & Niemivirta, 2008). Interestingly, a study employing a nationally representative sample of ninth-graders (Niemivirta, 2000) also found two groups of students with relative emphasis on avoidance tendencies. The two



groups constituted about a quarter of all students, which in turn is consistent with the pilot study (Tuominen et al., 2004).

To sum up, the motivational profiles of mastery- and success-oriented students appear adaptive and favourable, owing to the fact that these students emphasize learning and success in school, yet do not focus on avoiding work in achievement situations. However, the motivational profile of the mastery-oriented students seems to be even more adaptive than that of the success-oriented students, since the strong tendency to emphasize both relative and absolute success does not necessarily come without unfavourable concomitants. In turn, the motivational profiles of indifferent and avoidance-oriented students could be considered less adaptive, taking into consideration the relatively strong emphasis on avoidance and relatively weak emphasis on mastery. Nevertheless, the motivational profile of indifferent students appears to be slightly more adaptive compared to that of avoidance-oriented students, since indifferent students acknowledge the importance of studying, learning, and succeeding in school. To put it simply, the most adaptive achievement goal orientation profiles had the highest scores for mastery-focused tendencies. However, it is interesting to observe that the mastery- and success-oriented students reported rather similar levels of mastery-intrinsic and mastery-extrinsic orientations, yet the meaning of these two motivational profiles is somewhat different. This fact illustrates that it is not necessarily the levels of individual variables, but the interdependence of all the variables that make motivational profiles more or less adaptive.

The motivational profiles identified in the original studies were substantially similar, despite the slight differences in the ages of the participants and in the educational contexts in which the studies were conducted. Furthermore, the findings of the present study resemble the results of the pilot study (Tuominen et al., 2004) and also some other prior and concurrent studies utilizing a similar approach to examining students' achievement goal orientations (Meece & Holt, 1993; Niemivirta, 1998, 2000, 2002b; Tapola & Niemivirta, 2008; Veermans & Tapola, 2004). It must be remembered, however, that the comparison between the original studies and other studies is difficult because, in many cases, the measures and the methods used and the participants and the educational contexts examined varied.

#### **4.1.2 Stability and change in achievement goal orientation profiles**

The second main aim was to examine the stability of and change in secondary school students' achievement goal orientation profiles, both preceding educational transitions (Study II: Substudies IIa and IIb) and across an educational transition (Study III). According to the results of Studies II and III, it seems that, although achievement goal orientation profiles are relatively stable, they can also

change over time. This is in line with the general assumptions of the present study and with prior research (Bråten & Olaussen, 2005; Ratelle et al., 2004; Roeser et al., 1999) suggesting that while most students display a relatively stable motivational profile, some students still experience a change in motivation over time. It must be noted, however, that comparable studies examining the stability of students' achievement goal orientation profiles – especially with identical classifications of students over time – are lacking. In the present study, indicating stability, 57% of the lower secondary school students displayed identical motivational profiles during the ninth grade, 60% of the general upper secondary school students displayed identical motivational profiles between school years (from the second to the third year), and half of the students displayed identical motivational profiles across the transition from lower secondary school to upper secondary education. That is, there was considerable stability in all the groups over time, both preceding educational transitions and even across an educational transition, when there was a change in the educational context.

Although the remaining proportion of students showing change in their motivational profile may seem high, it must be emphasized that the majority of the changes that did occur in group memberships were directed towards groups with fairly similar profiles, and then there were only few clear changes. More specifically, 40%, 32%, and 46% of the students (in Substudy IIa, Substudy IIb, and Study III, respectively) moved to a neighbouring group (e.g., from a mastery-oriented to a success-oriented group); only 3%, 6%, and 2% of the students reported substantive, unfavourable change in their motivational profile (i.e., from a mastery- or success-oriented to an avoidance-oriented group); and only 1%, 3%, and 2% of the students reported considerable, favourable change in their motivational profile (i.e., from an avoidance-oriented to a mastery- or success-oriented group).

Another way of approaching profile stability was to examine the stability of and changes in goal orientation group memberships over time by means of configural frequency analyses. The results of CONFAs (see Tables 3 and 6) showed that in all of the studies, four types were revealed; four out of four cells, those corresponding to individuals belonging to the same group at both measurement points, showed significant types. In other words, it was typical for students to stay in the same motivational group over time. In addition, some antitypes were revealed; in Substudy IIa, 5 antitypes were found; in Substudy IIb, 6 antitypes were found; and, in Study III, one antitype was found. As can be seen from Table 6, which summarizes all the types and antitypes identified in Studies II and III, the antitypes seem to cluster into cells representing clear changes in motivational profiles. For example, changes from mastery- and success-oriented groups to an avoidance-oriented group are identified in many cases as antitypes and vice versa. On the other hand, changes to similar groups were not identified as anti-

types. For example, changes from mastery- to success-oriented group and vice versa or from avoidance-oriented to indifferent group and vice versa were not identified as antitypes in any case.

**Table 6.** Summary of the statistical types and antitypes revealed in Studies II and III.

	T2 Indifferent	T2 Success-oriented	T2 Mastery-oriented	T2 Avoidance-oriented
T1 Indifferent	TYPE Substudy IIa Substudy IIb Study III	ANTITYPE Substudy IIa Substudy IIb	ANTITYPE Substudy IIa Substudy IIb Study III	
T1 Success-oriented		TYPE Substudy IIa Substudy IIb Study III		ANTITYPE Substudy IIa Substudy IIb
T1 Mastery-oriented	ANTITYPE Substudy IIa Substudy IIb		TYPE Substudy IIa Substudy IIb Study III	ANTITYPE Substudy IIb
T1 Avoidance-oriented		ANTITYPE Substudy IIa	ANTITYPE Substudy IIb	TYPE Substudy IIa Substudy IIb Study III

*Note.* T1 = first measurement point of the study in question;  
T2 = second measurement point of the study in question.

The above findings suggest that adolescent students’ motivational profiles are, indeed, rather stable and thus lend support to the conception of achievement goal orientation as a disposition that reflects students’ general motivational tendencies in achievement and learning contexts. The results imply that even though achievement goal orientations may also fluctuate to some degree over time, some individuals are – in general – more mastery-oriented, and some may be more performance-oriented across contexts (see also Pintrich, 2000a). In line with Pintrich’s (2000a) argumentation, achievement goal orientations are assumed to be cognitive representations or knowledge structures, which may show both intraindividual stability and contextual sensitivity.

It nevertheless seems natural that some students still display change in their motivational profile, considering that in addition to the change in educational context (in Study III) which itself induces growing demands and even strain,

young people are simultaneously encountering several biological, psychological, and social changes characteristic of adolescence (see Salmela-Aro, 2011). Interestingly enough, in Study III, the avoidance-oriented students especially displayed change in their motivational profile as only 24% of students who were in the avoidance-oriented group at Time 1 stayed in the same group across the transition (see Table 3). This could imply that avoidance-oriented students are somehow more susceptible to the change in the educational context than the other students or that for these students there is simply more room for change. By comparison, in the other groups, 50–53% of the students stayed in the same group across time.

Several researchers have discussed the growing prevalence of performance goals as children and adolescents go through school (see, for example, E. M. Anderman, Austin, & Johnson, 2002). It has been suggested that this occurs because of the increased evaluative pressure students face in the course of time, with grades and tests becoming increasingly important. In the present study, the growing prevalence of performance tendencies was not visible, either on overall mean levels or based on changes in the goal orientation group memberships, but this might be due to the fact that middle adolescents already have quite a long experience of being tested and evaluated in school.

The results of this work are somewhat different from the few studies that have also investigated the stability of achievement goal orientation profiles. Very recently, Schwinger and Wild (2012) examined the longitudinal trajectories of achievement goal profiles in mathematics among students from third to seventh grade; this time period included a transition from elementary to secondary school after the fourth grade. According to their results, only about one-third of the students held the same achievement goal profile across the school years, while the majority of the students changed their goal profile at least once over time. Further, the number of students pursuing moderate multiple goals increased over time, and profile switching occurred mainly from high multiple goals to moderate multiple goals. Nevertheless, in line with the results of the present study, Schwinger and Wild (2012) found that students showing the same goal profile (high multiple goals, moderate multiple goals, or primarily mastery-oriented) across all five observed school years were marked as types in the configural frequency analysis. Interestingly, there was no peak in goal profile changes during the transition from elementary to secondary school. It is important to note that their study classified participants into groups separately for each time point, instead of classifying students disregarding the time dimension, which makes the examination of the stability in goal orientation profiles somewhat difficult. To summarize, the results of both Schwinger and Wild (2012) and Veermans and Tapola (2004) document that only about one-third of students hold the same profile across the school years; however, the difference between

these studies and the present one is that these studies examined goal profile stability among younger students and during several school years.

### **4.1.3 Profile differences in academic and socio-emotional functioning**

The third main aim was to examine how students with different achievement goal orientation profiles differ with respect to other relevant motivational indices, general and academic well-being, and academic achievement. The motivational groups showed meaningful, consistent, and expected differences across various indicators of academic and socio-emotional functioning. Next, I will summarize the profile differences discovered in the original studies in order to describe further the characteristics of the motivational profiles. In addition, the findings are discussed in light of both previous and more recent research.

#### **4.1.3.1 Indifferent students**

Indifferent students displayed relatively low levels of school value, schoolwork engagement, and satisfaction with educational choice. Still, they were more engaged in their studies than avoidance-oriented students. Regarding commitment and progress in relation to their educational goals, they scored rather low – as low as the disengaged and avoidance-oriented students. Indifferent students endorsed a preference for easy tasks and giving up easily; also, they were preoccupied with possible failures, especially in the general upper secondary school sample (Substudy IIb). They had relatively poor academic achievement, but in most cases their academic achievement was still higher than that of avoidance-oriented students. Indifferent students had average scores on general well-being and rather high scores on cynicism and inadequacy. In many respects, indifferent students were similar to the students primarily emphasizing avoidance tendencies, yet there were also some important differences (see also Niemivirta, 2000). For example, indifferent students expressed the same level of self-esteem and depressive symptoms as the avoidance-oriented students, but a higher fear of failure and higher schoolwork engagement.

The results suggest that these students with competing goal preferences but also reluctance to invest deeply in the attainment of these goals seem to have a preference for easy tasks and a tendency to give up easily and worry about failing. Accordingly, it seems that indifferent students do not progress in the attainment of their educational goals and do relatively poorly in school. Based on their subjective well-being, however, indifferent students did not seem to undergo serious psychological distress from the passivity and lack of engagement they expressed, but neither did they thrive in school. Similarly, among Finnish university students, a group of non-academic students has been identified; these students demonstrated hardly any critical evaluation or deep understanding and

they showed low levels of self-regulation, but they did not seem to be distressed (Heikkilä et al., 2011).

#### **4.1.3.2 Success-oriented and performance-oriented students**

Success-oriented students reported relatively high levels of school value, engagement in relation to schoolwork, satisfaction with their educational choice, and commitment, effort, and progress in relation to their educational goals. They succeeded very well in school; in fact, in Substudy IIb (i.e., the selective sample of general upper secondary students), success-oriented students had even higher academic achievement than mastery-oriented students. On the other hand, compared to mastery-oriented students, they displayed higher fear of failure. Furthermore, having a stronger concern for validating their competence, success-oriented students were more likely than mastery-oriented students to report exhaustion, cynicism, and inadequacy at school, as well as stress with respect to their educational goals. In addition to these differences in academic well-being, success-oriented students also experienced more depressive symptoms than mastery-oriented students. In effect, these success-driven students were highly committed to studying and to their educational goals, but they were somewhat stressed, emotionally exhausted, and preoccupied with possible failures in school.

Whether academic success for these students serves as an indicator of mastery or is of instrumental value as such (Grant & Dweck, 2003; Niemivirta, 2002b), the presence of such preferences seems to entail some degree of psychological distress. Prior research has also linked stress and perceived study demands with the pursuit of success and shown that while students who strive for success achieve well, they are somewhat preoccupied with possible failures in school and susceptible to emotional distress (Daniels et al., 2008; Smith et al., 2002). Together these findings support the assumption that self-worth based on external contingencies represents relatively controlled motivation and is thus associated with feelings of pressure and stress (Ryan & Deci, 2000). In the long run, it is likely that constant concerns about succeeding in school and outperforming others pose a threat to success-oriented students' well-being, which, in turn, might induce negative affect and cognition in the face of difficulty (see Grant & Dweck, 2003).

Despite the fact that success-oriented students are somewhat susceptible to emotional distress, their motivational profile can be considered favourable and adaptive in the sense that these students are highly engaged in schoolwork, value school and studying, and display relatively high overall academic well-being. In fact, in Substudy IIb, success-oriented students displayed both the highest school value and the highest academic achievement (in the other studies, mastery-oriented students had the highest score on school value followed by success-

oriented students). These findings are comparable to the results of Roeser and his colleagues (Roeser, Eccles, & Sameroff, 1998; Roeser et al., 1999, 2002), who identified a group of students manifesting “a pattern of motivation despite emotional distress” – in other words, students who were characterized by positive academic motivation and achievement, and at the same time, poor mental health. It seems that these young people continue to function well in school, at least for the time being, despite their relatively poor mental health (see Roeser et al., 1999).

Performance-oriented students (identified in Study I) were somewhat less committed to their educational goals than success-oriented students and had lower academic achievement. Compared to mastery-oriented students, performance-oriented students reported lower self-esteem and higher levels of depressive symptoms, as well as higher levels of cynicism and inadequacy. These students resemble the performance-oriented students identified by Niemivirta (2002b), who did not differ from the mastery-oriented students in terms of situational appraisals under a neutral task-condition, but exhibited stronger tendencies of self-protection in an ego-involving situation. These students might be more vulnerable to potential failures and setbacks in their studies than their mastery-focused or success-driven classmates, owing to their weaker self-esteem, for example (see also Tapola & Niemivirta, 2008).

In sum, students who predominantly emphasize performance goals – despite the fact that they are positively oriented towards school and studying – are susceptible to emotional distress, which might pose a threat both to their general and their academic well-being in the long run. This is the case even if the performance goals are espoused in combination with mastery goals (see also Daniels et al., 2008).

#### **4.1.3.3 Mastery-oriented students**

The mastery-oriented students were characterized by high levels of school value, schoolwork engagement, and commitment, effort, and progress in relation to their educational goal. They showed relatively low levels of both fear of failure and academic withdrawal, and they were doing very well in school. After the transition to upper secondary education, they reported the highest degree of satisfaction with their educational choice compared to the other students. Thus, mastery-oriented students found their schoolwork highly meaningful and valuable. Also, relatively high self-esteem combined with low levels of depressive symptoms, cynicism, and sense of inadequacy characterized this group.

In line with previous and concurrent research (Bråten & Olaussen, 2005; Daniels et al., 2008; Meece & Holt, 1993; Sideridis & Kaplan, 2011; Tuominen et al., 2004; Turner et al., 1998), these findings clearly suggest that striving for self-improvement and growth is associated with an adaptive pattern of general and



academic well-being and also with high levels of commitment and effort. Students emphasizing mastery orientation appear to display the most adaptive pattern of learning and adjustment. The present study supports the notion that mastery tendencies are also related to high academic achievement (see also Meece & Holt, 1993; Steinmayr et al., 2011). In the original studies, correlations between mastery-intrinsic orientation and academic achievement varied between .28 and .41. Correlations between mastery-extrinsic orientation and academic achievement varied between .36 and .51.

The mastery-oriented students appear to form a group with multiple strengths (see Roeser et al., 2002). These well-adjusted students have shown to demonstrate positive school motivation, self-esteem, mental health, and academic achievement in comparison to other students (Roeser et al., 1999, 2002). Taken together, the findings demonstrate that perceiving schoolwork as meaningful, having positive self-evaluations, and committing oneself to future goals are all supportive of intentional learning goal pursuit and long-term educational aspirations.

#### **4.1.3.4 Avoidance-oriented and disengaged students**

The avoidance-oriented students were characterized by relatively low levels of school value, schoolwork engagement, and satisfaction with educational choice. They reported relatively low commitment, effort, and progress in relation to their educational goals. Also, they displayed rather low self-esteem and high levels of depressive symptoms, inadequacy, and especially cynicism. Avoidance-oriented students were not particularly worried about failing in school, which refers to certain kind of passivity. Their academic achievement was poor compared to the other students.

Overall, the avoidance-oriented students seemed to demonstrate a particularly maladaptive pattern of motivation and well-being. These students had a low preference for challenging academic tasks and a tendency to give up easily and not invest a lot of effort in the attainment of their educational goals. These beliefs and behaviours are, of course, likely to be associated with low academic achievement. It has been suggested that the main source of avoidance orientation is an individual's efforts to protect the self (Boekaerts & Niemivirta, 2000; Nicholls et al., 1985). It appears that avoidance-oriented students lack both interest and confidence in their schoolwork, and consequently, they put in little effort because they see no reason for doing so or because achievement situations pose a serious threat to their self-esteem (see also Seifert & O'Keefe, 2001; Tapola & Niemivirta, 2008). Since failure would imply incompetence, it is surely safer to withdraw than to take the risk and make an effort.

As prior studies have shown that low academic achievement and low schoolwork engagement are related to feelings of cynicism and a sense of inadequacy as



a student (Salmela-Aro, Kiuru, et al., 2009), it is clear that this pattern of motivation and beliefs holds a risk, not only of inferior academic success, but also of even more debilitating motivational responses. In contrast to the mastery-oriented students with their multiple strengths, these avoidance-oriented students seem to represent an unfortunate group of adolescents with multiple risks (see Roeser et al., 2002), who are characterized by low academic motivation and poor mental health. However, it must be pointed out that avoidance-oriented students scored as low as mastery-oriented students on exhaustion at school and stress related to educational goal. This suggests that despite their unfavourable motivational profile, avoidance-oriented students may not necessarily feel bad about it. In other words, a certain passivity and alienation, that is, *not* being concerned about succeeding in school or outperforming others, may help these students to cope with the conflict between personal interests and external pressure. In a similar vein, the avoidance-oriented students expressed levels of fear of failure as low as those of mastery-oriented students. It appears that students who are more focused on validating or demonstrating their competence (i.e., success-oriented and indifferent students) experience a higher level of fear of failure than students who emphasize learning (i.e., mastery-oriented students) or students who just do not seem to care about schoolwork (i.e., avoidance-oriented students).

The disengaged students (identified in Study I) reported relatively low levels of commitment, effort, progress, and stress with respect to their educational goals. Nevertheless, compared to the avoidance-oriented students, they displayed higher self-esteem and reported lower levels of depressive symptoms, school-related cynicism, and inadequacy. Despite their rather maladaptive motivational profile, these students displayed less general distress and less stress about their aspirations for future than most of their more committed peers. They scored especially low on exhaustion, but, of course, one is unlikely to get exhausted by school demands if one does not strive to learn or succeed by any means. My interpretation of such a pattern is that these students are, to some extent, psychologically detached from school and their well-being is more influenced by experiences other than school-related ones. This pattern resembles the one Roeser et al. (2002) labelled as poor academic value group, a pattern characteristic of a group of students reporting relatively positive academic efficacy and mental health, but low academic value. Dina and Efklides (2009) also identified a group of students who were characterized by low achievement goal orientations, a poor attitude towards mathematics, low mathematics self-concept, low academic attainment, but also low test anxiety. Together, these findings imply that poor school motivation does not necessarily always indicate broad adjustment problems; for some students, poor school motivation may indicate boredom or apathy (Roeser, Eccles, & Strobel, 1998; Roeser et al., 2002).

To summarize the main findings concerning profile differences in academic and socio-emotional functioning, the results of this dissertation demonstrate that students with different motivational profiles differ not only with respect to their motivation and school-related well-being, but also with respect to their more general well-being and academic achievement. The findings are consistent with some other studies (e.g., Daniels et al., 2008; Dykman, 1998; Kaplan & Maehr, 1999; Sideridis, 2005) in demonstrating that students' focus on learning is associated with a positive pattern of motivation, achievement, and well-being and thus in suggesting that striving for self-improvement is indeed adaptive in the school context. In turn, students' preference for performance goals is related to lower levels of psychological well-being when compared to the pursuit of mastery goals (see also Daniels et al., 2008; Dykman, 1998; Kaplan & Maehr, 1999). For instance, compared to students without strong performance tendencies (i.e., mastery-oriented students), students holding such tendencies along with strivings for mastery (i.e., success-oriented students) displayed more exhaustion at school and stress associated with their future educational aspirations despite their apparently positive motivational profile, high engagement and commitment, and excellent academic achievement. That is, even the presence of mastery strivings does not necessarily alleviate the certain negative concomitants of performance tendencies. Also in line with prior research (Kolić-Vehovec et al., 2008; Ng, 2009; Seifert & O'Keefe, 2001; Skaalvik, 1997), work avoidance tendencies were associated with various negative outcomes; students aiming mainly at effort reduction and avoiding achievement situations showed the most maladaptive pattern of motivation, achievement, and well-being. Indeed, as Pintrich (2000a, p. 101) noted, "students are not just 'motivated' or 'unmotivated' in terms of some general quantity, but that in fact there are important qualitative differences in how students are motivated and these different qualities have a dramatic influence on learning and achievement" – and also on socio-emotional well-being.

#### **4.1.3.5 Parallel changes in motivation and well-being across the transition**

In Study III, it was also examined how changes in the achievement goal orientation profiles were related to parallel changes in academic well-being during the transition to upper secondary education. Students who exhibited a stable, favourable (i.e., mastery- or success-oriented) motivational profile and students who displayed adaptive change in their profile scored higher than the other students on school value, schoolwork engagement, and satisfaction with educational choice after the transition. This might imply a good fit between the student and the new educational context. At the same time, it could be speculated that the students who continually manifest an unfavourable motivational profile or display maladaptive change in their profile presumably experience a less successful

transition (based on their lower ratings of school value, engagement, and satisfaction with educational choice and relatively high scores on cynicism), resulting in some sort of misfit between the individual and the new educational context. These results imply that the motivational profile can reflect either a risk or a protective factor in the context of educational transitions. Changes towards more favourable motivational profiles during an educational transition promote academic well-being, while changes towards less favourable motivational profiles undermine academic well-being.

According to the findings of Study III, it seems that the upper secondary transition is not something negative as such. This conclusion is based on the fact that, given the present data and results and compared to previous studies (e.g., E. M. Anderman & Midgley, 1997; E. M. Anderman et al., 1999; L. H. Anderman & Anderman, 1999), the inclusion of the transition does not seem to imply an overall negative change in students' motivation. In fact, it was found that, overall, mastery-intrinsic orientation increased slightly across the transition, while in previous studies mastery goal orientation had been shown to decrease across the middle school transition (L. H. Anderman & Anderman, 1999; Shim et al., 2008). Urda and Midgley (2003) also concluded that students do not necessarily espouse a less adaptive achievement goal orientation after the transition to middle school and that, in fact, many students reported an increase in their personal mastery goal orientation. In the present study, some of the students went through the transition without adjustment problems or declining motivation, while some of the students encountered unfavourable, parallel changes in motivation and well-being. For some, the educational transition might have provided new possibilities as some students seemed to excel both academically and socio-emotionally.

For purposes of this dissertation, I also investigated how the changes in goal orientation group and educational track after the transition were related. Although this was not a primary research question of the present study, these findings imply that students' achievement goal orientation profiles are somehow also related to their actual educational choices. As might be expected, students who strive for success in school and are highly committed to studying (i.e., the success-oriented students) are more likely to opt for the academic track, while less engaged students (i.e., the indifferent students) are more likely to select the vocational track.

## **4.2 Methodological Considerations**

Study I was based on cross-sectional data and investigated students' achievement goal orientation profiles and profile differences in well-being among lower and upper secondary school students. In Study II, two separate longitudinal

studies addressed the stability and change in students' achievement goal orientations *preceding* educational transitions. Finally, Study III covered an educational transition and examined the stability and change in students' achievement goal orientations and the parallel changes in achievement goal orientations and academic well-being *across* the transition. The methodology (key measures and analyses) of all of the original studies was similar, as the aim was to approach the issue of individual differences in motivation systematically and over time in a specific conceptually, theoretically, and methodologically coherent way. For instance, because in Study II, considerable stability in achievement goal orientations was detected preceding educational transitions, it was especially interesting and meaningful in Study III to address the moderating role that an educational transition might play in the stability and change in achievement goal orientations. The coherence and comparability of the original studies is one of the strengths of the present work. Next, I will address this and other methodological aspects in more detail.

In all of the original studies, variable-centred methods (e.g., investigating structural validity and stability through confirmatory factor analyses, correlational analyses) and person-centred methods (i.e., identifying subgroups of students through latent profile analysis) were combined. Considering the results concerning both stability and change in achievement goal orientations and the associations between achievement goal orientations and well-being, mere variable-centred analyses would have probably masked important results that were revealed by means of combining variable- and person-centred analyses. According to the variable-centred results of Studies II and III, there was considerable structural and normative stability in achievement goal orientations over time. In addition, there were some changes in the latent factor means over time, but the changes were small. For example, there seemed to be slight decreases in mastery-extrinsic and performance-avoidance orientations preceding and across educational transitions and a slight increase in mastery-intrinsic orientation across the transition to upper secondary education. Addressing only these changes in the mean levels would have masked the fact that there are students who are differently oriented towards studying and learning and that some students experience unfavourable or favourable change in their motivational profile over time, while some students display no change in their motivational strivings.

By taking a person-centred analytical approach and by including various dimensions of achievement goal orientations and academic and socio-emotional functioning, a more complex view of the dynamics between motivation, achievement, and well-being was possible. It was not only possible to extract valid groups of students sharing similar motivational tendencies, but also to demonstrate important differences between these students in terms of academic and socio-emotional well-being. These findings, once again, might have been

concealed in a plain, variable-centred examination. To give an example, overall, mastery-intrinsic orientation was not associated with exhaustion, and it was strongly negatively correlated with a sense of inadequacy as a student. Nevertheless, there were two groups of students, both of which scored high on mastery-intrinsic orientation (i.e., mastery- and success-oriented), but the success-oriented students, who simultaneously emphasized performance-related goals, scored relatively high on exhaustion and inadequacy, contrary to the whole sample correlations. This kind of approach provides a way of looking at the relative emphasis in different achievement goal orientations and thus offers a productive view of the issue of multiple goals and their effects on important outcomes. The explicit focus on groups of individuals with similar tendencies (instead of mere variable relationships) allows us to consider the relative importance of goal preferences and thus to take a different view on the debate on which orientation is good for what. The findings of this research demonstrate how specific variation in goal preferences may be associated with no differences in some outcomes, yet important differences in others.

The strength of the person-centred approach rests on the possibility of treating individuals as the main units of measurement (Bergman & Andersson, 2010; Bergman & Nurmi, 2010). Although other data analytical techniques grounded on this approach (e.g., multiple regression, median-split procedures, cluster analysis) offer important insights into understanding students' diverse motivational strivings, I believe that the model-based classification of students into subgroups was an applicable and robust method for purposes of the present study (see also Pastor et al., 2007). In employing a person-centred approach, the principal goal is to specify how many distinct profiles it is plausible to assume. The possible risks and weaknesses of the person-centred methodology are particularly related to this decision-making. Latent profile analysis, however, provides fit indices that facilitate decision-making regarding the number of groups. Additionally, the interpretableness and reasonableness of the solutions in relation to theory and prior research are considered, and thus, some interpretation is always included when deciding on the number of groups.

The method of LPA yielded six profiles in Study I and four profiles in Studies IIa, IIb, and III. In other words, in all of the original studies, students primarily oriented towards mastery, performance, and avoidance were identified, as well as a group of students without a dominant tendency towards any specific goal orientation (i.e., indifferent students). In addition, it seems that in Study I, students predominantly endorsing performance tendencies were divided into two groups with slightly different emphases: students in the performance-oriented group mainly emphasized outperforming others, and students in the success-oriented group also aimed for absolute success. Similarly, students mainly displaying avoidance tendencies seemed to be split into an avoidance-oriented

group and a “low motivation” group of disengaged students; the avoidance-oriented students emphasized avoidance and performance-avoidance orientations, while the disengaged students scored low on all orientations. These class solutions were useful, easily interpretable, and meaningful in relation to theory and prior research and also supported by the statistical criteria. In effect, a rather similar class solution was replicated in all of the original studies, only with slight changes in the nature of the profiles between different samples (e.g., between lower and upper secondary school samples). Interestingly, in Study I, the number of profiles was larger, which might partly be due to the larger and more heterogeneous sample, as the sample included both lower and upper secondary school students, and the grouping was implemented for all students concurrently. In a study using a large, representative sample of Finnish lower secondary school students (Niemi-virta, 2000), six groups of students were also found.

In addition to the decision-making regarding the number of groups, another feature of the person-centred methodology that always includes some interpretation is the naming of the groups. Regarding those groups in which one achievement goal orientation is dominant, the labelling is fairly easy (e.g., mastery-oriented), but when a group is characterized by competing preferences in which no single goal orientation is predominant, then the naming of the group is trickier. For example, it was quite difficult to characterize the profile of indifferent students with one simple label. This group was labelled “indifferent” in order to describe the certain unwillingness of these students to commit to any specific goals and also to point to the fact that these students seemed to be in many respects “average” students. The group of students striving for both absolute and relative success and also learning was labelled success-oriented. In my view, this label very well describes the multifaceted motivational aspirations of this group, that is, their simultaneous strong emphasis on learning (mastery-intrinsic), succeeding (mastery-extrinsic), and outperforming others (performance-approach). It should be remembered that even with students who have a dominant tendency towards one particular orientation, they all still pursued multiple goals simultaneously, but in varying degrees. This suggests that competing preferences are common among adolescents, especially in a school context where students seek both to follow personal interests and to respond to external demands.

For purposes of the present dissertation, the achievement goal orientation profiles of each corresponding goal orientation group identified in Studies I–III and in the pilot study (Tuominen et al., 2004) were merged into the same figures (Figures 6–9). These figures demonstrate that there were differences, both in profile levels (describing quantitative differences between the groups) and in profile shapes (reflecting qualitative differences) (see Marsh et al., 2009). Also, as can be seen in these figures, the corresponding profiles in the different studies are remarkably similar, which can be seen as an indication of internal stability

and representativeness of the classifications. It should be noted, however, that there is some overlap in the participants of the original studies, that is, the samples of the original studies are not totally independent, but, on the other hand, the sample used in the pilot study is entirely independent.

Additional support for the validity of the groupings is provided by the fact that very similar groups were identified, not only in the pilot study, but also in other studies using similar instrumentation and classification procedures (Niemi-virta, 2000, 2002c; Tapola & Niemi-virta, 2008). Also, in prior and later research using somewhat varying instrumentation and classification procedures (see Appendix A), rather similar goal orientation groups have been found. The number of groups identified in prior studies has mainly varied between three and six, the majority of studies including four groups. In many cases, a group of “average” students has not been identified, which might partly be due to the fact that several studies (often using median split procedures) have not included students whose scores were neither high nor low in any one orientation in later analyses; instead, such students were treated as unclassifiable (e.g., Sideridis & Kaplan, 2011). On the other hand, other studies have identified a large group of students with a rather similar profile to the indifferent students in this study, but this group has been labelled differently (e.g., Schwinger & Wild, 2012) or has been considered of less interest than the other groups (e.g., Berger, 2012). For example, Schwinger and Wild (2012) found such a group, which included as much as 60% of the students in the seventh grade, and named it the moderate multiple goals group. Interestingly enough, even studies examining adolescents’ motivation and socio-emotional functioning, but using totally different measures as clustering variables have extracted remarkably similar groups (e.g., Roeser et al., 2002; Tuominen-Soini & Salmela-Aro, 2012). It can be concluded that the results of the original studies in terms of classification solutions are systematic, theoretically meaningful, and also exhibit strong explanatory power. The congruence of the findings illustrates the utility of investigating individual differences in achievement goal orientations from a person-centred perspective.

It is important to point out that the types of profiles extracted naturally depend on the types of achievement goals or goal orientations taken into consideration in the analyses (see also Appendix A). Instead of the trichotomous (Elliot & Harackiewicz, 1996) or the  $2 \times 2$  (Elliot & McGregor, 2001) frameworks commonly used in more task-specific achievement goal research, we focused on more general motivational tendencies and conceptualized them in terms of five types of achievement goal orientations and their configurations. In our view, and in agreement with Brophy (2005), it makes sense to distinguish between performance-related goals that include a social comparison component (i.e., performance-approach) and that do not (i.e., mastery-extrinsic). Aiming for good results usually refers to performance-related tendencies, but the present study



adds to this knowledge by demonstrating that striving for academic success does not always need to be norm-referenced; it can also be self-referenced (see also Niemivirta, 2004a). In addition, avoidance tendencies were considered in the present study, although, according to Elliot (1999), for example, work avoidance goals are not considered achievement goals, because they represent the absence of an achievement goal rather than the presence of a competence-based aim. Consequently, the five types of orientations included in this study were mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, and avoidance orientations. The inclusion of mastery-extrinsic and work avoidance orientations provided supplementary information on students' diverse motivational aspirations. Factor analyses indicated that these five types of goal orientations were empirically as well as conceptually distinct, and correlational analyses revealed that they had contrasting and meaningful patterns of relationships with other motivational and well-being variables. For example, both mastery-intrinsic and mastery-extrinsic orientations were positively associated with academic achievement, but mastery-extrinsic was more strongly correlated with both performance-related orientations and, unlike mastery-intrinsic orientation, positively correlated with fear of failure and exhaustion. These differences in the patterns of relationships reflect the more instrumental and contextual nature of the mastery-extrinsic orientation.

One more advantage of the person-centred methodology is that it also describes the representativeness of a given phenomenon in terms of frequencies. For instance, the proportion of students with a relative emphasis on avoidance tendencies (i.e., avoidance-oriented and/or disengaged students) varied from 7% to 20% in the original studies. Additionally, about one-third of the students in every study seemed to combine such tendencies with strivings for mastery and performance (i.e., indifferent students). Restricting the types of orientations assessed to those that imply achievement strivings, that is, assuming that all students seek either to gain or to demonstrate competence, includes the risk of disregarding a number of students who either repress such strivings, devalue the kind of competence such aspirations imply, or simply lack any interest in school achievement. This finding concerning the prevalence of avoidance tendencies among secondary students became more evident through the analytical approach employed in the study and is clearly something that should not be ignored.

The longitudinal person-centred approach employed in Studies II and III not only enabled the detection of different motivational profiles, but also facilitated the investigation of the qualitative shifts in patterns of achievement goal orientations over time. This way, it was possible to go beyond examining the development of single achievement goal orientations. Goal stability was investigated within and between school years and across an educational transition. Naturally,



the way achievement goal orientations are conceptualized and operationalized influences the results concerning goal stability and change. As this study treated goal orientations as generalized dispositions, which were assessed accordingly as general orientations in school, the finding that achievement goal orientations are rather stable over time was expected. The role and meaning of stability would have been more ambiguous if the focus had been on particular *goals* instead of on generalized goal preferences (i.e., *goal orientations*) and if achievement goals had been operationalized in terms of specific tasks or particular courses that a student was taking.

It was explicitly acknowledged at the outset that the patterning of achievement goal orientations may change over time, and this was integrated into the way students' profiles were identified (i.e., using latent profile analysis and the ISOA procedure) and further analyzed (i.e., by means of configural frequency analysis). ISOA seemed to be a suitable procedure for purposes of the present study, since the measurement period was no more than twelve months at the most. Owing to the identical classification structure over time, this approach simplifies comparisons across measurement points and allows for more easily interpretable findings concerning developmental trends (see Bergman et al., 2012). A person-centred approach focusing on the qualitative changes in motivation proved to be a powerful means to explore the possibility that only some of the students follow the widely suggested decline in motivation during adolescence and especially across an educational transition, while others do not. However, one potential methodological bias that might influence the results concerning profile stability should be pointed out. In latent profile analysis (see Chapter 2.6.3), in order to classify a given person, the probabilities of belonging in each cluster are first calculated. An assignment is then made to the cluster associated with the largest of the posterior probabilities. In other words, although LPA allows a person membership in each cluster to a certain degree, the modal assignment of persons to clusters still results in a person being classified in only one cluster (Pastor et al., 2007). Accordingly, persons who are on the border of two groups are classified in only one of them, and this might increase the proportion of students who end up being classified as reporting a change in their motivational profile, even though there really has not been a notable change in the configuration of their ratings.

The examination of profile stability is still an infrequent approach in studying the development of achievement goal orientations. It is interesting to note that, in a recent study investigating students' achievement goal profiles from the third to the seventh grades (Schwinger & Wild, 2012), the conclusion was that there is not much stability in those profiles as only about one-third of the students maintained the same goal profile over time. This conclusion is rather different from the one based on the findings of the present study, and there are several possible

explanations. First, the grouping of students was done separately for each time point in the study by Schwinger and Wild (2012), while in our study the grouping was done concurrently, disregarding the time dimension. Second, the stability in profiles was investigated across several years, while in our study the longest measurement period was one year. Third, achievement goals were assessed in relation to mathematics, not in relation to studying in general; and, fourth, the students were younger than in this study. All of these matters partly influence the findings and conclusions drawn about stability in goal profiles.

To conclude, within the achievement goal literature, the comparison between the results of different studies can often be rather difficult, due to the varying conceptualizations and operationalizations and to the different educational contexts and participants of varying ages. The comparison of the results from the original studies for the present dissertation, however, is rather straightforward, since similar theoretical and methodological approaches (e.g., the same measures and identical data analyses) were utilized. The original studies were designed to be comparable from the beginning, and consequently, they formed a coherent entity. In addition to the coherence and comparability between the original studies, another methodological strength of this work is the breadth; that is, the scope of the study was broadened into two distinct educational contexts (i.e., lower and upper secondary school), two age groups of adolescents were included, and different measurement intervals were used (i.e., four and twelve months). This study provides empirical evidence for the validity of the achievement goal orientation measures used and for the replicability of the identified goal orientation groups. It also makes evident the utility and importance of examining holistic patterns of individuals functioning, that is, employing a person-centred approach. Finally, only the focus on individual development instead of considering mere overall developmental trends revealed the various patterns of adolescents' academic and socio-emotional functioning and the changes in them over time.

### **4.3 Pedagogical Considerations**

From a practical point of view, the most important implications of the present work relate to the acknowledgement of different types of students. It is essential to recognize that students view their schoolwork with very different motivational mindsets in order to consider effective, alternative ways of confronting the students' varying needs. It seems that lack of motivation is but one of numerous motivational and affective hindrances to effective studying and learning. In addition, concerns about failure, cynicism, emotional exhaustion, boredom, and alienation are all different, but significant symptoms of maladjustment, either to one's own or to the environment's expectations and demands. Consequently, we

should learn to pay special attention to groups of students with different types of problems and risks and further, support their adjustment to school by creating learning settings that more appropriately meet different students' needs and goals.

On the one hand, there are avoidance-oriented students who are mainly oriented towards avoiding schoolwork and there is also a large group of indifferent students, whose motivational mindset is not optimal either, due to their relatively strong emphasis on avoidance tendencies. These rather maladaptive motivational groups are found even in selective samples of students on the academic track. It would be important to support these students' school engagement, their valuing of school, and their feelings of capability and competence in school and also to offer them opportunities somehow to link their studying to their own lives in a meaningful way. On the other hand, there is a risk that students who seem to thrive in school are neglected and left without support (see also Daniels et al., 2008). For example, the vulnerability of success-oriented students to emotional distress and exhaustion should not be concealed by their academic success. Identifying and assisting these students is important too. Success-oriented students are already highly engaged and committed to studying. As these students are preoccupied with success and possible failure in school, it would be important to try to help them understand that making mistakes is also part of the learning process. The existence of such a notable variation among students has implications for educational practice. It can be concluded from these findings that some adolescents may need school-based interventions that enhance motivation and school engagement (avoidance-oriented and indifferent students), while others may benefit more from services and interventions that are designed to promote students' well-being (success-oriented students). Those students who seem to have multiple problems (avoidance-oriented students) might benefit from both types of interventions. Also, it would be important for schools to recognize those few students who seem to experience an extreme dysfunctional change in their motivational tendencies during the secondary school years and to support their commitment to school and their feelings of competence as a student so that these students would not be alienated from school.

Since we know that students have quite different motivational mindsets, schools should invest in personal student counselling services, both preceding and during educational transitions in order to support each student individually in making the best suited choices (see Vuori, Koivisto, Mutanen, Jokisaari, & Salmela-Aro, 2008). After comprehensive school, the transition to upper secondary education offers young Finns the chance to select their educational track for the first time. For many students, this might be a chance to start over in a positive way. For instance, students who are not academically-oriented might opt for the vocational track and consequently find their niche as vocational

school students in a context that emphasizes practical skills and hands-on experience. Indeed, it seems that something positive happens to students who move to the vocational track, as it has been suggested that school burnout decreases during the transition among those who choose the vocational track (Salmela-Aro, Kiuru, & Nurmi, 2008; Salmela-Aro & Tynkkynen, 2012). After the transition, students still need adequate student counselling and health care services to continually support their engagement and adjustment in school.

Further, the findings of the present study demonstrate that achievement goal orientations are, after all, quite enduring individual dispositions and that goal orientation profiles remain rather stable within and between school years as well as across an educational transition. This implies that the more general motivational tendencies may not be easily manipulated in the complex world of classrooms. The tendencies appear to be malleable, yet surprisingly stable over time. This emphasizes even more the importance of teachers' ability to meet the different needs of different students and to support students' studying and learning individually. Even though achievement goal orientations seem to be relatively stable over time, that is, a preference for certain goals is characteristic of an individual, situational demands and cues can also orient students towards different achievement goals. Tapola and Niemivirta (2008) emphasize the interaction of individual and contextual factors and suggest that students' dispositional motivation characteristics should be taken into account in instructional interventions.

Yet another important implication for educational practice is that mastery goals should be supported and encouraged to promote *all* students' motivation, school adjustment and well-being. An emphasis on personal progress and self-improvement (e.g., by means of temporal instead of normative evaluation practices), coupled with supportive, collaborative activities, might prove successful in terms of enhancing task commitment, efficacy beliefs, and intrinsic motivation, even among the more avoidance-focused students (e.g., Butler, 2006; Meece & Miller, 1999). When performance goals and ability differences are made especially salient to students in the classroom, it will probably lead to greater incidence of social comparison behaviours and competition, which is likely to undermine motivation, learning, and even well-being. This would be especially likely among those students whose focus is already on validating their competence (Kaplan & Maehr, 1999; Wolters, 2004). More specifically, it has been suggested that a focus on social comparison and competition in the learning environment might be cognitively distracting from learning and task engagement and also likely to be associated with anxiety, worry, negative self-perceptions, and other negative emotions (see Brophy, 2005; Roeser & Eccles, 1998). One evident problem related to endorsing performance goals is that not all students can realize the aims of demonstrating competence and outperforming others, for example, if a student's

actual competence falls short relative to others. Instead, the goal of improving one's abilities is possible at different levels of actual ability, and therefore, teachers should encourage students to intra-individually compare their work results and competences over time to see the progress in their learning (e.g., Butler, 2006).

Both low- and high-performing students can suffer from the negative consequences of a strong emphasis on social comparison in the learning environment. On the one hand, low-performing students become aware of their relative low standing, which might boost their cynical attitudes and sense of inadequacy as students. On the other hand, a learning environment that emphasizes performance goals and social comparison can be risky for success-oriented students, who are already strongly performance-focused and preoccupied with possible failures in school. For these students, an emphasis on learning and self-improvement would be fruitful because it might help them to appraise the learning situation – even in the case of failure – as an opportunity to learn and grow from their mistakes. In this event, errors and mistakes would not pose such a serious threat to success-oriented students' self-evaluations and well-being, and they might even increase their efforts and persistence (Grant & Dweck, 2003).

Because prior research has revealed that students on the academic track report higher school burnout compared to students on the vocational track (Salmela-Aro, Kiuru, & Nurmi, 2008; Salmela-Aro & Tynkkynen, 2012), it seems that mastery goals should be strongly encouraged in general upper secondary school in order to minimize the negative effects of the commonly competitive environment. Reducing the focus on competition and ability differences and increasing the emphasis on mastery are important means of establishing a learning environment that promotes both learning and school adjustment. According to Urda and Midgley (2003), students' perceptions of changes in the mastery goal structure of their classrooms are strongly related to changes in patterns of adaptive learning; those students who perceive an increase in the classroom mastery goal structure even seem able to avoid the general decline in motivation, affect, and achievement that many early adolescent students experience. Similarly, Anderman et al. (1999) demonstrated that schools can make a difference; students' motivational beliefs changed differently, depending on the kind of middle school attended. Students attending schools that placed greater emphasis on competition and relative ability exhibited higher levels of performance goals after the transition, while students who moved to a school that used more task-focused instructional practices exhibited fewer negative changes in motivational beliefs.

In addition to the certain negative consequences on the individual of pursuing performance goals, some researchers have suggested that performance goals can be seen as counterproductive from the classrooms perspective, because they

conflict with norms associated with collaborative learning and class cohesiveness (Brophy, 2005; Levy et al., 2004; Levy-Tossman et al., 2007). Studies have, for example, demonstrated that performance-oriented students are more concerned with public demonstration of their self-worth and more likely to evaluate cooperation with regard to its implications for social status, while mastery-oriented students are more concerned with experiences of growth and less with impression management and social status; thus, they are more willing to cooperate with their peers, regardless of the peers' social status in class (Levy et al., 2004; Levy-Tossman et al., 2007).

To sum up, the most important practical implications of this study relate to acknowledging that there are different types of students, encouraging mastery tendencies, and reducing excessive focus on social comparison and competition in schools. A non-comparative, non-competitive learning environment would be especially important for adolescents, given their increased self-consciousness about their abilities (Eccles & Midgley, 1989).

#### **4.4 Limitations and Recommendations for Future Research**

The findings of the present dissertation have several limitations. Addressing students' multiple goals was an important aim in this study, and five distinct achievement goal orientations were included in order to capture the diversity of students' motivational strivings. Future work could focus even more extensively on multiple goals, that is, a still broader range of students' goals could be considered, including, for instance, social goals. Achievement goals, although a widely-used framework in motivation research, is naturally only one way of approaching students' motivation in a school context. Therefore, even though the main focus here was on students' achievement goal orientations, the scope of the study was broadened by incorporating other relevant motivational indices (e.g., fear of failure, academic withdrawal, education-related personal goal appraisals).

Future research should include the replication of our classification in other educational contexts, among students of various ages, and in other nationalities. Nevertheless, some cross-cultural evidence of the applicability of the classification already exists (see Brdar et al., 2006; Kolić-Vehovec et al., 2008; Tanaka, 2007, see also Niemivirta, Rijavec, & Yamauchi, 2001). Also, more heterogeneous populations in Finland (e.g., the metropolitan area, where the proportion of immigrants is higher) could be examined as a means to understand the diverse patterns of students' achievement goal orientations. The fact that all ninth-graders from all the lower secondary schools and all second-year students from all the general upper secondary schools in one city were included in the data collection of the present study can be considered a strength, however. In this

area, the data collection was extensive, resulting in representative data and valuable information for the city in question.

Given that considerable achievement goal research has already been conducted on university students (especially psychology undergraduates) and given that achievement goal orientations of middle adolescents have received somewhat less attention, the present study focused on lower and upper secondary school students. Future research could put more emphasis on even younger children and their first experiences with school in order to gain more information about the sources of different goal orientation profiles. This way, the etiology of different motivational profiles and the processes that are responsible for profile stability and change could be examined. In particular, the developmental sources of avoidance orientation should be investigated.

Achievement goal theory has also highlighted the environmental characteristics that foster different motivational orientations (see e.g., Midgley, 2002). In this study, the interaction of individual and contextual factors was not the focus. Instead, the focus was on the intra-individual changes in achievement goal orientations, and the research was built on a conception of achievement goal orientations as dispositions. Even though a student is seen to have a dispositional tendency to favour some goals over others, the situational factors can also alter the salience of these preferences (Pintrich, 2000a). Achievement goal orientations should not be regarded as entities unaffected by institutional and cultural frames. In future research, goal orientations and the whole learning process should be more explicitly embedded in social and cultural contexts, meaning the larger culture, schools and classrooms, and specific situations. For instance, Finnish society, culture, the educational system, teacher roles, and school conventions and their specific features (e.g., a relatively homogeneous society, equal opportunities to good public education for all, the scarcity of external testing in Finnish schools, highly educated teachers; see Sahlberg, 2011) surely have an impact on Finnish students' motivation and, thus, on the findings of this study. Future research endeavours could explore how contexts, situations, and individual differences combine in the processes that elicit achievement goal orientations (see Kaplan & Maehr, 2002). However, when considering the scope of individual and contextual variation in student motivation, it should be remembered that in Finland the school-level variation in motivation has been shown to be rather low (Niemi-virta & Järvelä, 2003). According to the stage-environment fit theory (Eccles & Midgley, 1989), it is the fit between the student and the environment that makes the difference. If the learning environment offers a poor fit for adolescent's psychological needs, then negative motivational consequences will follow.



Furthermore, future research should focus on the complicated interaction between cognitive, motivational, and socio-emotional factors and situational interpretations occurring in natural learning settings (see Kaplan & Maehr, 2002; Lehtinen et al., 1995). For example, it has been suggested that student behaviour typical of a certain motivational-emotional orientation affects the quality of the teacher-student interaction in a way that reciprocally increases the existing orientation tendency of the student (Lehtinen et al., 1995). It would indeed be important to explore these dynamics in future research in order to better understand the complexity of the learning process and the interactions between the student and the social situation. The core issue would be to account for the fact that there are students with different motivational orientations who appraise and interpret situations differently and have different expectations of success, different emotional responses, and different coping efforts. Following the logic of prior research (e.g., Boekaerts & Niemivirta, 2000; Järvelä & Niemivirta, 2001; Lehtinen et al., 1995) suggesting that students' motivational tendencies influence the way they appraise school-related events, we should focus on situations and conditions in which the consequences of holding certain tendencies become most salient. Interestingly, Niemivirta (2002b) found that performance-oriented students did not differ in their situational appraisals from their mastery-oriented classmates in a neutral task-condition, but exhibited far stronger tendencies of self-protection in an ego-involving situation; in other words, the detrimental consequences of the ego-involving condition were accentuated most for the performance-oriented students. Intervention research could be conducted bearing in mind both goals and emotions (see Lehtinen et al., 1995) in an attempt to provide tools for treating different individuals in school situations more adequately and also for promoting students' school adjustment and well-being.

Gender differences were not reported in the original articles because of space limitations; thus, gender differences were not a focus of this dissertation. With respect to Study II, however, gender differences in achievement goal orientations and in goal orientation group memberships are reported in detail elsewhere (see Tuominen-Soini, Salmela-Aro, & Niemivirta, 2010). These results suggest that, overall, girls emphasized learning more, while boys emphasized outperforming others and avoidance tendencies more. The gender differences were systematic and more accentuated in the upper secondary school sample (Substudy IIb) compared to the lower secondary school sample (Substudy IIa), but the overall effects were rather small. Boys were more likely than girls to belong to the indifferent group in both samples, while girls were more likely than boys to belong to the success-oriented group in the upper secondary school sample (see Tuominen-Soini et al., 2010). In future studies the possible moderating role of gender could be investigated more closely.



The present study explicitly focused on stability and change in achievement goal orientations and goal orientation profiles within and between school years and across an educational transition. The longest measurement period in this study was one year, but it would be useful to prolong the time span of the study design. Additional longitudinal studies are needed to examine developmental change as a function of multiple goals, especially during educational transitions. The present study addressed the transition to upper secondary education, but goal stability and change could also be investigated during other educational transitions and even during the transition from school to work. For example, it would be important to follow success-oriented students' further educational and occupational paths to try and understand more about this rather interesting pattern of functioning in which emotional distress is present, yet does not seem to undermine the student's engagement and commitment in studying. Since these students are vulnerable to exhaustion and stress, it would be interesting to know how they deal with transitional periods, should this pattern of motivation be prolonged. The examination of profile stability using a longitudinal person-centred approach proved to be useful, but future work could extend the present approach by using other methods as well (e.g., growth mixture modeling, latent transition analysis) in order to explore the developmental trajectories of achievement goal orientations over a longer period of time.

The assessment of achievement goal orientations was conducted by means of self-report inventories using Likert-type scales. This raises the question of whether surveys with forced choices can capture the complex meanings of achievement goal orientations for different individuals. Qualitative protocols such as interviews could have been used in order to determine the goals and the reasons the students give for studying when they are allowed to produce these goals freely (see e.g., Dowson & McInerney, 2001, 2003). Also, one might speculate whether the assessments truly reflect students' motivational tendencies or is it rather that the assessment methods create relatively stable response patterns. The fact that achievement goal orientations in the present study were assessed as cross-situational might accentuate the stability found. Once again, addressing more explicitly the contextual sensitivity in both achievement goal orientations and emotions would be interesting and important in future research (see Kaplan & Maehr, 2002; Lehtinen et al., 1995). In addition to students' self-reported data, another way of assessing students' motivation and socio-emotional well-being could have been to include multiple approaches and sources of information (e.g., teachers, student counsellors, student health care personnel, parents). However, the main interest in this study was precisely on students' own perceptions and their experiences of their motivation and well-being. Also, actual instead of self-reported GPA should be used in order to avoid possible bias in

the estimates of academic achievement, but the register data on GPA were not available for this study.

Despite these limitations, this study has a number of strengths related to its multidisciplinary nature, linking various aspects of students' motivation and well-being, the explicit focus on goal stability and change, the inclusion of an educational transition, combining person- and variable-centred analytical methods, and the coherence and comparability of the original studies. To conclude, additional studies are still needed that focus on multiple goals and on stability and change in patterns of achievement goal orientations, especially during educational transitions.

## **4.5 Conclusions**

The purpose of this dissertation was to investigate the prevalence, functionality, and temporal stability of achievement goal orientation profiles among lower and upper secondary school students. Accordingly, Study I examined lower and upper secondary school students' achievement goal orientation profiles and profile differences in general and academic well-being and academic achievement. Study II included two substudies focusing on the temporal stability of lower and upper secondary school students' achievement goal orientation profiles preceding educational transitions and also on profile differences in motivational indices and academic achievement. Study III extended the results obtained in Studies I and II by examining students' achievement goal orientation profiles, temporal stability in profiles across the transition to upper secondary education, and differences in academic well-being. Combining elements from achievement motivation research (e.g., Niemivirta, 2002b, 2004a; Urdan, 1997) and from work on adolescents' academic and socio-emotional functioning (Roeser, Eccles, & Strobel, 1998; Roeser, Eccles, & Sameroff, 1998; Roeser et al., 2002; Salmela-Aro, Savolainen, et al., 2009), this study suggested that the goals students pursue in achievement situations are associated with their academic and socio-emotional functioning. This dissertation contributes to current achievement goal research in several respects, most importantly, by providing new insights into the associations between achievement goal orientations and well-being and also into the development of achievement goal orientations over time. In short, the results here demonstrate that students display various patterns of achievement goal orientations in lower and upper secondary education, that these patterns are rather stable preceding and even across educational transitions, and that these patterns are associated in meaningful and expected ways with students' academic and socio-emotional functioning.

This dissertation adhered to the multiple goals perspective. Concerning the assessment and analysis of achievement goal orientations, this study has gone

beyond most of the prior research in incorporating five orientations. As anticipated and consistent with prior studies (e.g., Meece & Holt, 1993; Niemivirta, 1998, 2000, 2002b; Tapola & Niemivirta, 2008; Veermans & Tapola, 2004), groups displaying a dominant tendency towards mastery (mastery-oriented students), performance (success- and/or performance-oriented students), and avoidance (avoidance-oriented and/or disengaged students), as well as a group without a dominant tendency towards any specific goal orientation (indifferent students) were identified. The findings of this dissertation clearly show that the inclusion of both mastery-extrinsic orientation (i.e., striving for absolute success) and avoidance orientation (not just related to performance goals) in the measurement is crucial in order to obtain a comprehensive view of the various tendencies students exhibit in school settings.

In line with prior research (Bråten & Olaussen, 2005; Daniels et al., 2008; Kaplan & Maehr, 1999; Meece & Holt, 1993; Turner et al., 1998) and the general assumptions of this study, the findings clearly support the adaptiveness of chiefly pursuing mastery goals. Mastery-oriented students aspired to learn and succeed in school, and they were characterized by high levels of school value, schoolwork engagement, and commitment and effort in relation to their educational aspirations. Also, they were doing very well in school and displayed relatively low levels of depressive symptoms, cynicism, inadequacy, and fear of failure. In other words, the preference for mastery goals promotes the most positive pattern of academic and socio-emotional functioning. Success-oriented students also strove for learning and succeeding in school, but outperforming others was an important goal for them as well. Like mastery-oriented students, success-oriented students reported high levels of school value and schoolwork engagement, but unlike mastery-oriented students, they reported relatively high levels of burnout and fear of failure, owing to their stronger concern for validating their competence. These findings demonstrate that students' tendency to validate and demonstrate their personal qualities may lead to some positive outcomes in terms of engagement, valuing of school, and academic achievement, but it is also linked with some adjustment problems and socio-emotional vulnerability, even when these performance-related goals and outcomes are pursued together with mastery-related goals.

These findings contribute significantly to the debate on the advantages of having mastery vs. performance-approach goals. The results unambiguously demonstrate how the possible benefits of performance-approach tendencies do not necessarily come without unfavourable concomitants. That is, the high achievements of success-oriented students are attained at the expense of a greater fear of failure and emotional vulnerability as compared to what their mastery-oriented peers experience. This is consistent with the view that endorsing performance goals comes at a cost and may be detrimental to certain outcomes (e.g.,

Daniels et al., 2008; Kaplan & Maehr, 1999). These findings imply that the argument for the benefits of adopting performance-approach tendencies is short-sighted and needs to be reconsidered in light of a broader range of consequences.

In stark contrast to mastery-oriented students, avoidance-oriented students deliberately aimed at avoiding schoolwork altogether. These students showed the most maladaptive pattern of academic and socio-emotional functioning; they were characterized by relatively low levels of school value, engagement, and academic achievement, while exhibiting high levels of cynicism and inadequacy. The present findings are in line with prior research, which suggests that students' avoidance tendencies are systematically related to passivity and various negative outcomes in relation to motivation, achievement, and school adjustment (e.g., Kolić-Vehovec et al., 2008; Ng, 2009; Seifert & O'Keefe, 2001). On the other hand, a large group of indifferent students was identified. These "typical" students acknowledged the goals of learning and doing well in school, but at the same time tried to minimize the time and effort spent studying. Their motivation for learning and studying was less than optimal, and they did not thrive in school; then again, they did not seem to have any particular problems either. To sum up, indifferent and avoidance-oriented students showed less adaptive patterns of academic and socio-emotional functioning compared to mastery- and success-oriented students.

The findings of this research demonstrate the importance of including a variety of personal outcomes when evaluating the role of achievement goal orientations in learning and achievement. The consideration of academic outcomes alone would be seriously limited (see also Heikkilä et al., 2011; Lehtinen et al., 1995; Roeser, Eccles, & Strobel, 1998). To give an example, students can be divided into two major classes with different achievement levels: the better achieving students included success-, mastery-, and performance-oriented students, whereas the indifferent, avoidance-oriented, and disengaged students comprised the less achieving students. Only by including indices of socio-emotional well-being was it possible to make inferences about the broader implications of different motivational profiles. According to the results, there were important differences in well-being among equally high achieving students, and there were similarly illustrative, yet dissimilar variations among the lower achieving students. Depending on the differences in achievement goal orientation profiles, high achievement may or may not be associated with emotional exhaustion and stress (i.e., success-oriented vs. mastery-oriented students), just as low achievement may or may not be associated with a broad range of psychological distress (i.e., avoidance-oriented vs. indifferent and disengaged students). In a similar vein, some prior studies have suggested that positive school motivation, achievement, and mental health often go together, though not always, and aca-

ademic problems often occur along with social and emotional problems, though sometimes not (see Roeser, Eccles, & Sameroff, 1998).

To sum up, the findings of the present study reveal the complexity of students' motivational aspirations and academic and socio-emotional functioning. The multiple goals perspective proved to be advantageous; only by taking into account the concurrent levels of different achievement goal orientations, was it possible to obtain a more comprehensive view of students' motivational tendencies and the outcomes associated with them. A major contribution was to provide new insight into the associations between student motivation and well-being by including measures of academic and socio-emotional functioning, which had not been used before in examining achievement goal orientations (e.g., school burnout, schoolwork engagement, education-related goal appraisals), and by utilizing a longitudinal person-centred approach in order to gain important information about students' individual differences in and development of motivation and well-being over time. The findings helped to reveal which achievement goal orientation patterns are adaptive and which are maladaptive.

Regarding the temporal stability of achievement goal orientation profiles, the findings of this study are in line with some other studies (Bråten & Olaussen, 2005; Schwinger & Wild, 2012) in demonstrating that although achievement goal orientation profiles are somewhat stable, they can also change over time; however, the present findings indicate even more stability than other studies have done. Around 60% of both lower and upper secondary school students displayed identical motivational profiles within and between school years, and half of the students displayed identical profiles across the transition to upper secondary education. Moreover, most of the changes in the group memberships were directed towards neighbouring groups, and there were only a few substantive changes. In other words, there was considerable stability in all groups over time, both preceding educational transitions and even across a transition when there was a change in the context. The present work contributes to current research by filling some gaps in our understanding of stability and change in achievement goal orientations. This is one of the few longitudinal studies to examine the development of achievement goal orientations across the transition to upper secondary education. The novel contribution of this study is the examination of stability and change in goal orientation profiles, using a person-centred approach and an identical classification for different time points.

Adolescence is a phase of life that is full of challenges, demands, possibilities, and changes related to such things as puberty, gaining autonomy, interpersonal relationships, identity exploration, choice of career, and future-planning in general (e.g., Nurmi, 1993). Considering this developmental turmoil related to adolescence and the fact that the educational transition induces growing demands

and even strain (see Salmela-Aro, 2011), it is not surprising that some students display change in their motivational profile. In my view, however, the motivation of surprisingly many adolescents is relatively unaffected by this turmoil, which lends support to the conception of achievement goal orientation as a disposition – a motivational mindset – that reflects students' general motivational tendencies in achievement contexts. Owing to the societal nature of the educational transitions and age-graded developmental tasks, in future endeavours the exploration of young people's motivation and well-being should be more fully embedded in the larger social and cultural contexts.

Based on the study's findings, it appears that the upper secondary transition is not something negative as such, that is, the inclusion of the transition does not seem to imply an overall negative change in students' motivation. Major changes in achievement goal orientations could have taken place as a function of the transition; however, as the empirical findings demonstrate, this was not the case. Instead, for some, the educational transition seemed to provide new possibilities, and these students even excelled academically and socio-emotionally. Prior studies have generally suggested that negative changes in motivation and well-being take place during educational transitions in early adolescence (E. M. Anderman et al., 1999; L. H. Anderman & Anderman, 1999; Isakson & Jarvis, 1999; Roeser et al., 1999; Wigfield et al., 2006). Other studies, however, have demonstrated that adolescents might show positive change overall during an educational transition, for example, in life satisfaction (Salmela-Aro & Tuominen-Soini, 2010). On the other hand, only some students manifest unfavourable changes in motivation and well-being, while many go through the transitional period without these problems (Ratelle et al., 2004; Roeser et al., 1999).

What seems to matter is the fit between the person (the student) and the environment (the school). Exposure to developmentally inappropriate environments should create a particularly poor stage-environment fit, which is likely to lead to declines in motivation and school adjustment (Eccles & Roeser, 2009). When the environment fits well with a student's interests, needs, and goals, the end results should be high engagement, adaptive motivation, and well-being (Eccles & Midgley, 1989; Salmela-Aro, Kiuru, & Nurmi, 2008). The findings of the present study – namely that students who exhibited a stable, favourable motivational profile and students who displayed adaptive change in their profile reported higher engagement and satisfaction with educational choice after the transition compared to the other students – implies a better fit between the student and the new educational context. In turn, students who continually manifested an unfavourable motivational profile or displayed maladaptive change in their profile reported lower engagement and satisfaction and, accordingly, seemed to experience a less successful transition, resulting in some sort of misfit between the individual and the new context. In fact, the findings of this disserta-

tion demonstrate that many adolescents show positive patterns of motivation and well-being and that, for many, the trajectories are not only stable, but also stable and positive. It should not be forgotten, however, that there are those adolescents who show a dysfunctional change in their motivational profile as they go through school or who continually display an unfavourable motivational profile.

In conclusion, secondary school students endorse multiple achievement-related goals and outcomes simultaneously, and the patterns of these strivings are differentially associated with academic and socio-emotional functioning, yet rather stable both preceding and across educational transitions. The findings demonstrate the importance of including measures of socio-emotional well-being when evaluating the role of achievement goal orientations in learning and achievement. The results show that the educational transition periods for youth are not entirely characterized by either school disengagement and distress or school engagement and well-being. It is therefore crucial to focus on individual development in motivation and well-being; some students encounter declining motivation and different types of adjustment problems, while some navigate this phase without notable problems, and some even seem to flourish and become increasingly motivated and engaged in studying.



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## APPENDICES



**Appendix A. Summary of studies examining achievement goal orientation profiles or groups.**

Reference	Achievement goal scales	Participants	Method	Number of profiles/groups and their labels	Profile differences
Pintrich & Garcia, 1991	Intrinsic and extrinsic (i.e., mastery and performance) goal orientations	College students	Quartile split	9: Both intrinsic and extrinsic goal orientations were split into the lowest quartile, middle 50%, and highest quartile resulting in nine cells	Students who were high mastery/low performance reported the greatest use of metacognitive strategies, while low mastery/low performance students used these strategies least. Students who were high mastery/high performance reported highest levels of self-efficacy, while the lowest level of self-efficacy was reported by low mastery/low performance students. Test anxiety was lowest among high mastery/low performance students.
Meece & Holt, 1993	Task mastery, ego social, and work avoidant goals	5th- and 6th-graders	Cluster analysis	3: High mastery (high on mastery but low on other goals); combined mastery-ego (high on both mastery and ego, low on work-avoidant goals); low mastery-ego (low on mastery-ego, but high on work-avoidant goals)	Students in the high mastery cluster showed the most positive achievement profile; they reported a relatively high level of active engagement in learning activities, the lowest level of superficial engagement, and the highest grades and test scores. Students in the combined mastery-ego cluster did not perform as well academically, and they reported using both active learning and effort-minimizing strategies. Students in the low mastery-ego cluster showed the most negative achievement profile; they reported the highest work avoidance and the lowest levels of cognitive engagement.
Bouffard, Boisvert, Vezeau, & Larouche, 1995	Learning and performance goal orientations	College students	Median split	4: High Learning/High Performance (HLHP); High Learning/Low Performance (HLLP); Low Learning/High Performance (LLHP); Low Learning/Low Performance (LLLLP)	Students having high concerns with both learning and performance goals reported using more cognitive strategies and achieved higher academic performance than the others. In metacognitive strategies and motivation, HLHP and HLLP groups scored equally high. LLHP group reported using more self-regulatory strategies, having greater motivation and higher academic performance than the LLLL group.

Seifert, 1995	Mastery and performance goal orientations	5th-graders	Cluster analysis	3: Both mastery and performance oriented (Cluster 1); mastery oriented (Cluster 2); moderately performance oriented but not mastery oriented (Cluster 3)	Students in Clusters 1 and 2 behaved in a similar manner. The difference was that Cluster 2 students were less likely to attribute failure to uncontrollable factors. Students in Cluster 3 reported lower perception of their ability, lower preference for challenge, less positive affect, and a lower sense of self-worth than the others. Students who were more mastery-oriented tended to behave in a self-regulatory way.
Bouffard, Vezeau, & Bordeleau, 1998	Learning and performance goal orientations	Junior, middle, and senior high school students	Median split	4: High Learning/High Performance (HLHP); High Learning/Low Performance (HLLP); Low Learning/High Performance (LLHP); Low Learning/Low Performance (LLLLP)	Regarding young students, having high learning goals promoted self-regulation, whatever their performance goals. At higher school levels, performance goals were related to self-regulation and academic performance. High performance goals alleviated the negative effects of low learning goals for older students.
Niemivirta, 1998	Learning, performance, and avoidance orientations	7th-graders from junior high school	Cluster analysis	3: Learning-oriented, performance-oriented, avoidance-oriented	Learning-oriented students had positive self-perceptions and control beliefs, reported using effective learning strategies, and had high GPA. Performance-oriented students reported using more superficial learning strategies and had lower self-esteem than learning-oriented students. Avoidance-oriented students showed the most maladaptive pattern of motivation and had the lowest GPA.
Turner, Thorpe, & Meyer, 1998	Learning and ability goals (and negative affect after failure, deep strategy use, self-efficacy, action after failure, preference for difficulty)	5th- and 6th-graders from elementary school	Cluster analysis	4 motivational-affective patterns: Learning oriented, success oriented, uncommitted, avoidant	Learning oriented students were highly engaged in learning activities and reported the lowest negative affect. The success oriented cluster represented a positive approach to learning, but one that was more influenced by an ego focus. Uncommitted students were not very engaged with their schoolwork, but they still reported trying to learn through the use of adaptive strategies, and their reports of negative affect did not differ from the average. Avoidant students showed the least adaptive motivational-affective profile.

Bem-benutty, 1999	Task, performance-approach, and performance-avoidance goal orientations	College students	Cluster analysis	3: High mastery (Cluster 1); Combined high mastery and high performance-approach (Cluster 2); Low mastery, low performance-approach, and low performance-avoidance (Cluster 3)	Students in Cluster 1 had a greater preference for academic delay of gratification than the others. Students in Cluster 2 considered the delay of gratification's alternatives as important and useful while perceiving the non-delay alternatives as highly interesting and socially beneficial. Students in Cluster 3 reported a low preference for delay of gratification.
Pintrich, 2000	Mastery and performance goal orientations	8th- and 9th-graders from junior high school	Median split	4: High-mastery/low-performance, high-mastery/high-performance, low-mastery/high-performance, low-mastery/low-performance	High-mastery/low-performance and high-mastery/high-performance groups had an equally adaptive pattern of motivation, affect, and achievement. Low-mastery/high-performance and low-mastery/low-performance groups had less adaptive patterns of motivation, affect, and strategy use.
Suárez Riveiro, Cabanach, & Valle Arias, 2001	Task, self-enhancing ego, self-defeating ego, and work-avoidance orientations	University students	Cluster analysis	3: High self-enhancing/self-defeating/work-avoidance and medium task goals (Cluster 1); High task/self-defeating and medium self-enhancing/work-avoidance goals (Cluster 2); High task, medium work-avoidance and low self-enhancing/ self-defeating goals (Cluster 3)	Students who reported high task orientation tended to exhibit more frequent use of cognitive and self-regulatory strategies. When multiple-goal adoption was considered, students who developed the most positive self-regulation were characterized by their focus on learning, but also by their desire to avoid being judged negatively by others (Cluster 2). Students in Cluster 1 reported using the least cognitive and self-regulatory strategies.
Haydel & Roeser, 2002	Task mastery, ego approach, and ego avoidance orientations (and implicit theories of intelligence, self-confidence in science ability)	10th and 11th grade high school students	Median split	4: Mastery-oriented (incremental intelligence beliefs and a mastery goal orientation); ego-oriented (entity intelligence beliefs, an ego goal orientation, and high confidence); helpless (entity intelligence beliefs, an ego goal orientation, and low confidence); unclassified	Helpless students were more test anxious than the others. Mastery- and ego-oriented students found science more interesting than the helpless and unclassified students. Ego- and mastery-oriented students felt more efficacious and perceived tests as more valid than did the helpless and unclassified students. Helpless students did worse than the others on the science achievement test items. Ego- and mastery-oriented students did equally well on the test, but mastery-oriented students reported the highest test engagement.



Niemivirta, 2002	Mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, and avoidance orientations	9th-graders from junior high school	Latent class cluster analysis	3: Learning-oriented, avoidance-oriented, performance-oriented	Avoidance-oriented students displayed higher levels of test anxiety than the others. Performance-oriented students had slightly lower self-efficacy than the others. When the instructional condition was taken into account, the ego-involving condition resulted in lower self-efficacy and more self-handicapping in students who emphasized performance goals, whereas for learning-oriented students, the consequences were virtually non-existent.
Roeser, Strobel, Quihuis, 2002	Task, ego-approach, and ego-avoidance goal orientations (and intelligence is fixed, academic mastery efficacy)	6th-, 7th-, and 8th-graders from middle school	Median split	3: Mastery-oriented, ego-oriented, helplessness	Compared to mastery- and ego-oriented students, help- less students were less engaged and more distracted in relation to school learning, and they acted out and withdrew more in the classroom. Ego-oriented students reported more internalizing and externalizing problems than mastery-oriented students.
Valle, Cabanach, Núñez, González-Piñeda, Rodríguez & Piñeiro, 2003	Learning, performance, and social reinforcement goals	University students	Cluster analysis	3: Groups with predominance of performance goals (PG); predominance of multiple goals (MG); and predominance of learning goals (LG)	Groups MG and LG attributed their success more to ability, had higher perceived ability, showed higher persistence, and used more deep learning strategies than did Group PG. Groups MG and PG took the evaluation criteria into account more and attributed their failures more to luck than did Group LG. Group MG attributed their success more to effort than did the other groups, and they attained higher achievement than Group PG. Group LG tended to attribute their failures more to lack of effort than the others did.

Tuominen, Salmela-Aro, Niemivirta, & Vuori, 2004	Mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, and avoidance orientations	9th-graders from lower secondary school	Latent class cluster analysis	4: Non-committed, avoidance-oriented, performance-oriented learning-oriented	Non-committed students represented a typical student in the sample with average scores on almost all motivational and well-being variables. Avoidance-oriented students were the least committed in their educational goals, experienced the least goal progress, and reported the lowest intrinsic motivation. The learning-oriented students displayed the most adaptive pattern of motivation and well-being. Performance-oriented students also displayed a rather adaptive pattern of motivation and well-being, but they were more performance-focused and externally motivated than learning-oriented students.
Veermans & Tapola, 2004	Learning, performance, and avoidance orientations	Primary school students	Cluster analysis	3: Avoidance (Group 1); learning (Group 2); performance-avoidance (Group 3)	Students in Group 1 emphasized avoidance orientation. Students in Group 2 had a clear preference for learning orientation and the lowest score on avoidance orientation. Students in Group 3 had the highest score on performance orientation.
Brdar, Rijavec, & Loncaric, 2006	Learning, performance, and work-avoidance goal orientations	High school students	Cluster analysis	4: Learning oriented, Work-Avoidance oriented, Performance/Learning oriented, Performance/Work-Avoidance oriented	The learning oriented group used emotion-focused coping the least frequently, while the performance/work-avoidance oriented group used emotion-focused coping the most frequently. The most frequent use of problem-focused coping was found among students with learning and combined learning/performance orientation. The performance/learning oriented group had better school achievement than the work-avoidance group.

Fortunato & Goldblatt, 2006	Learning, performance-approach, and performance-avoidance goal orientations	Undergraduate students	Cluster analysis	4: Fear-based achievers, low achievers, moderate achievers, high achievers	<p>Fear-based achievers were focused on how they perform relative to others. They scored relatively low on conscientiousness, self-efficacy, and motivation to learn, and high on fear of failure and negative affectivity. Low achievers manifested a largely apathetic motivational profile; they set low distal goals and performed poorly. Moderate achievers displayed a moderate orientation towards success and performed rather well, but reported high negative emotionality. High achievers emphasized mastery, performed well, and scored high on conscientiousness, self-efficacy, and positive affectivity.</p>
Ng, 2006	Mastery, performance-approach, and work avoidance goals	Adult distance learners	Median split	4: Mastery-focused learners, performance-focused learners, balanced-goal learners, performance-anxious learners	<p>Mastery-focused learners had the most adaptive pattern of learning and engagement, followed by balanced-goal, performance-focused, and performance-anxious learners. Balanced-goal learners had a pattern similar to mastery-focused learners except that they had a higher level of anxiety.</p>
Levy-Tossman, Kaplan, & Assor, 2007	Mastery, performance-approach, and performance-avoidance goals	7th-graders from junior high school	Cluster analysis	6: 1) medium-low mastery and performance-approach, low performance-avoidance; 2) medium mastery, low performance goals; 3) medium-low mastery, medium performance goals; 4) medium-high mastery, high performance goals; 5) high mastery, medium performance-approach, medium low performance-avoidance; 6) high mastery and performance-approach, medium performance-avoidance	<p>Profiles with a higher level of mastery goals relative to both types of performance goals were associated with less mistrust among friends than profiles with a higher level of performance goals relative to mastery goals. It was the motivational profiles in which the performance-approach and performance-avoidance were higher than mastery goals that were associated with the negative characteristics of mistrust and inconsideration.</p>

Pastor, Barron, Miller, & Davis, 2007	Mastery-approach, performance-approach, performance-avoidance, and mastery-avoidance goals	College students	Latent profile analysis	2-, 3-, and 4-factor conceptualizations were used: 5 profiles were needed to classify students in the 2- and 3-factor conceptualizations and 6 profiles in the 4-factor conceptualization	For all conceptualizations, there were meaningful differences among the clusters in workmastery and competitiveness. Clusters also differed significantly in semester GPA. In general, clusters that were high in both the mastery-approach and performance-approach had relatively high GPA and reported relatively high workmastery, while a cluster that was low in both approach factors had relatively low GPA and reported low workmastery and competitiveness.
Tanaka, 2007	Learning, achievement, performance-approach, and performance-avoidance goal orientations	9th-graders from junior high school	Cluster analysis	3: HL-HP (high learning/high performance goal group); HL-LP (high learning/low performance goal group); LL-LP (low learning/low performance goal group)	The mean score of achievement, performance-approach, and performance-avoidance goals was calculated and labeled performance goal and used with the learning goal in clustering. HL-HP and HL-LP groups were equal in self-efficacy, perceived success, and task performance. The LL-LP group scored the lowest on self-efficacy and performance. The HL-LP group scored the lowest on test anxiety.
Daniels, Haynes, Stupnisky, Perry, Newall, & Pekrun, 2008	Mastery and performance-approach goals	College students	Cluster analysis	4: High mastery/performance (multiple goals); dominant mastery; dominant performance; low mastery/performance (low motivation)	The multiple-goals, mastery, and performance clusters showed equivalent levels of achievement; however, students in the mastery and multiple-goal clusters experienced higher enjoyment and lower boredom than students in the performance cluster, while students in the performance cluster were more psychologically and emotionally vulnerable. The low-motivation cluster demonstrated the least adaptive profile.
Kolić-Vehovec, Rončević, & Bajšanski, 2008	Mastery, performance, and work-avoidance orientations	University students	Cluster analysis	4: Mastery, mastery-performance, performance-work-avoidance, work-avoidance goal orientation groups	Groups with high mastery orientation had more adaptive motivational profiles and more adequate reading strategy usages than groups with high work-avoidance orientation. The work-avoidance group had the least adaptive profile; their perceived ability and the value of studying were the lowest.

Lau & Lee, 2008	Mastery and performance-approach goals (and perceived instrumentality)	8th-graders from secondary schools	Median split	4: High mastery/high performance-approach; high mastery/low performance-approach; low mastery/high performance-approach; low mastery/low performance-approach goal groups	In perceptions of classroom environment and in strategy use, the high mastery/high performance-approach group scored highest, followed by the high mastery/low performance-approach group, then the low mastery/high performance-approach group, and finally the low mastery/low performance-approach group. Students with high mastery and performance-approach goals employed more learning strategies than did those who pursued a single goal.
Lau & Roesser, 2008	Task mastery, ego approach, ego avoidance, and work avoidance goals (task values, classroom emotions, test anxiety, competence-beliefs, context beliefs, regulatory processes, cognitive abilities)	High school students	Inverse factor analysis	4: Four types of students were identified in both the male and female subsamples, and two of these types were found to generalize across gender groups, namely the mastery-oriented and helpless patterns.	The mastery-oriented pattern was characterized by high achievement and engagement outcomes and high levels of competence-related beliefs, task goal orientation, intrinsic motivation, and positive perceptions of the classroom environment. The helpless pattern was characterized by low achievement and engagement outcomes and low competence-related beliefs, task goal orientation, and intrinsic motivation, and high work-avoidance orientation, perceived ego goal emphasis in class, and negative emotions.
Ng, 2008	Mastery-development, performance-approach, work-related, social enhancement, and social affiliation goals	Adult distance learners	Cluster analysis	4: Mastery-focused learners; multiple-goal learners with a work focus; multiple-goal learners with a performance focus; multiple-goal learners with multiple focuses	Multiple-goal learners with a work focus emphasized studying for career advancement. Compared with the others, they used more surface strategies and fewer adaptive strategies related to learning, achievement, and self-regulation and showed less interest in their courses. However, learners focusing on work-related goals or performance goals achieved better results than did those focusing on multiple goals or solely on mastery goals.

Tapola & Niemivirta, 2008	Learning, performance, and avoidance orientations	6th-graders from elementary school	Latent class cluster analysis	4: Learning-oriented, achievement-oriented, performance-oriented, avoidance-oriented	Learning- and achievement-oriented students had relatively high scores on self-esteem and causality beliefs of effort, while performance- and avoidance-oriented students scored higher on the causality beliefs of luck and academic withdrawal. Performance-oriented students scored highest on causality beliefs of ability. Students in the different groups differed in their preferences for and perceptions of their classroom environment. Achievement- and performance-oriented students preferred the emphasis on ability and evaluation more than the others. Learning- and achievement-oriented students perceived their classrooms as relatively more learning focused than the others did. Avoidance-oriented students did not consider task-focused and challenging classroom work as important as others did.
Cano & Berbén, 2009	Mastery approach, mastery avoidance, performance approach, and performance avoidance goals	University students	Cluster analysis	4: Cluster 1: low AG, specifically on mastery goals; Cluster 2: low AG but moderately high mastery approach; Cluster 3: high AG but low performance approach; Cluster 4: high AG, specifically on the performance approach	Students in Cluster 4 evidenced some positive characteristics (e.g., academic performance, deep learning approach) as did students in Cluster 2. However, students in Cluster 4 perceived the academic environment as performance-structured, had a more fragmented conception of mathematics, and adopted the highest levels of surface learning approach blended with moderate amounts of deep learning approach.
Dina & Efklides, 2009	Mastery, performance-approach, and performance-avoidance goal orientations (and math ability, mathematics self-concept, attitude towards mathematics, test anxiety)	7th- and 9th-graders from high school	Cluster analysis	8: 1) high attitude/high self-concept/high mastery/ high performance-approach; 2) high ability/high anxiety; 3) high performance/low ability; 4) low attitude/low self-concept/low mastery; 5) high ability/high attitude/ low anxiety/low performance-avoidance; 6) high performance/low ability/high anxiety/low attitude/low self-concept; 7) low goals/ low attitude/low self-concept/ low anxiety; 8) low anxiety	Students with Profiles 5, 1, and 2 had the best task performance in mathematics. Profiles 6, 7, and 8 had relatively low task performance. Students with Profiles 5 and 1 reported the highest liking and interest in the tasks, while students with Profiles 6 and 7 had the lowest self-reports of liking and interest. Students with Profiles 1 and 5 reported the highest feelings of confidence and a feeling of satisfaction.

Liu, Wang, Tan, Ee, & Koh, 2009	Mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance goals	Secondary 2 students	Cluster analysis	4: Moderately, highly, moderately high, low	The cluster with high achievement goals and the cluster with moderately high goals had the most positive psychological characteristics and perceived outcomes (in relation to project work). The cluster with very low scores for all achievement goals had the most maladaptive profile.
Ng, 2009	Mastery, performance-approach, and work-avoidance goals	Adult learners	Cluster analysis	3: Performance-focused, work-avoidant, multiple-goal learners	Multiple-goal learners had the most adaptive pattern of perceptions, strategy use, and self beliefs. Performance-focused learners also had an adaptive pattern of engagement, but they were more anxious and used more surface strategies than the multiple-goal learners. These two groups achieved high scores on essays and assessments. Work-avoidant learners used more surface strategies and felt more anxious, less efficacious, and less interested in completing their essays compared to the others.
Luo, Paris, Hogan, & Luo, 2011	Mastery, performance-approach, and performance-avoidance goals	Secondary 3 students	Latent class cluster analysis	4: Diffuse (moderate multiple); Moderate Mastery (moderate mastery/low performance approach and avoidance); Success Oriented (moderate mastery/high performance approach and avoidance); Approach (high mastery and performance approach/low performance avoidance)	Students in the Success Oriented and Approach groups were higher on self-efficacy, task values, engagement, time management, and meta-cognitive self-regulation than the others. Students in the Approach and Moderate Mastery groups reported more effort when encountering difficulties, lower test anxiety, lower negative affect, and achieved higher scores in math than the others. Success Oriented students showed the highest test anxiety and negative affect. In sum, the goal profile with high mastery and performance approach goals combined with low performance avoidance goals was most beneficial for learning, whereas high performance approach goals combined with performance avoidance goals had some negative effects on affective outcomes.

Sideridis & Kaplan, 2011	Mastery, performance-approach, and performance-avoidance goals	University students	Median split	4: Mastery-oriented, performance approach-oriented, performance avoidance-oriented, amotivated	Mastery-oriented students persisted longer in the task compared with performance approach-oriented, performance avoidance-oriented, and amotivated students across failure trials. However, performance approach-oriented students were more likely to re-bound after experiencing success. Amotivated students experienced the lowest level of positive affect.
Berger, 2012	Mastery-approach, challenge-mastery, performance-approach, performance-avoidance, and work avoidance goals	Vocational school students	Latent profile analysis	4: Profile 1: low mastery and challenge-mastery but high work-avoidance; Profile 2: a standard profile with no peak on any of the goals; Profile 3: high mastery but low performance and work-avoidance goals; Profile 4: high mastery, performance-approach, and performance-avoidance goals	Profile 1 was the least adaptive: students in this group scored low on perceived ability, individual interest, and utility value, but high on anxiety and the entity theory of ability. Students in profile 3 reported high scores on perceived ability and low scores on anxiety and the entity theory of ability. Students in profile 4 attributed the most value (interest and utility) to mathematics and reported the most active learning strategy use. Profile 3 students favoured elaboration and metacognitive self-regulation strategies and used less rehearsal.
Conley, 2012	Mastery, performance-approach, and performance-avoidance goal orientations (and task values, competence beliefs)	7th-graders from middle school	Cluster analysis	7: Low cluster, average-traditional, average-high cost, average-multiple goals, high-low cost, high-high cost, high-all	In one average cluster, students reported moderate interest in math and a sole focus on mastery goals, while in another, students focused on both mastery and performance-approach goals. These two groups did not differ in achievement and affect, though both fared better than a cluster focusing also on performance-avoidance. Students in the low cluster showed relatively low positive affect, high negative affect, and low achievement.
Schwinger & Wild, 2012	Mastery, performance-approach, and performance-avoidance goals	Students followed from 3rd to 7th grades	Latent profile analysis	3: High multiple goals, moderate multiple goals, primarily mastery-oriented	Very few differences emerged between the groups in educational outcomes (interest, effort, achievement). Primarily mastery-oriented students showed the best math grades in school years 3 and 7. High multiple goals students showed the lowest test scores in 6th and 7th grades.

*Note.* This summary includes studies in peer-reviewed, English-language journals that meet the criteria of clustering/grouping of students on the basis of achievement goals or goal orientations and use person-centred analytical methods. Studies within the field of sports psychology are excluded from this summary.





## Appendix B. Summary of studies examining stability and change in achievement goal orientations.

Reference	Achievement goal scales	Participants	Measurement points	Stability and change in achievement goal orientations
Nolen & Haladyna, 1990	Task orientation	High school students	The beginning and the end of the school year	Task orientation in the fall was moderately related to task orientation in the spring.
Bouffard, Boisvert, Vezeau, & Larouche, 1995	Learning and performance goal orientations	College students	Retest after four weeks	Coefficients of correlation were .65 and .71 respectively for the learning and performance subscales.
Roeser, Midgley, & Urdan, 1996	Personal task and relative ability goals	Middle school students	The spring of the 6th and 8th grades	Coefficients of correlation over time were .38 for task goals and .39 for relative ability goals. Moderate stability in students' goals over a two-year period.
Seifert, 1996	Mastery and performance orientations	5th-graders	Two occasions separated by a five-month interval (October & March)	Goal orientation was fairly stable across time (correlations: mastery .58, performance .55). A difference between means was found for performance orientation (decreased from T1 to T2), but mastery orientation was stable over time. Performance oriented students became less performance oriented, while mastery students became more mastery oriented and students who were neither mastery nor performance oriented became more mastery oriented. When differences occurred, the change was in the positive direction.
Stipek & Gralinski, 1996	Mastery and performance orientations	3rd-, 4th-, 5th- and 6th-graders	Twice over one school year (fall and spring)	Scores on the motivation measures were fairly stable over time (correlations: .41-.48).
Wolters, Yu, & Pintrich, 1996	Learning, extrinsic, and relative ability goal orientations	Middle school students, 7th- and 8th-graders	The beginning and the end of the school year (fall and spring)	Moderate to high stability over time for learning, relative ability, and extrinsic goal orientations across three disciplines (English, math, social studies) (correlations: .40-.55).

Anderman & Midgley, 1997	Personal task and performance goal orientations	5th- and 6th-graders	5th grade (spring, elementary school) and 6th grade (spring, middle school)	Moderate stability in task and performance goals (math and English) over time (stability coefficients: .28-.47). Students reported endorsing personal task goals less after the transition. No mean change over time in personal performance goals.
Vande-Walle, 1997	Learning, Prove (Performance Goal), and Avoid (Performance Goal)	College students	At the beginning of the academic term and retest 3 months later	The coefficients of correlation were .57-.66.
Young, 1997	Task-focused and relative ability-focused goal orientations	Middle school students	The spring of the 6th and 7th grades	In English, the scale means of task-focused and relative ability-focused goal orientations declined over time. In math, task-focused goal orientation declined.
Bouffard, Vezeau, & Bordeleau, 1998	Learning and performance goal orientations	Junior, middle, and senior high school students	Retest after four weeks	The coefficients of correlation were .69 and .71 respectively for the learning and performance subscales.
Dykman, 1998	Validation-seeking and growth-seeking	Undergraduate students	Retest after 10 weeks	The test-retest correlation was .76 for the validation-seeking and .78 for the growth-seeking subscale, suggesting that goal orientation is a relatively stable disposition.
Anderman & Anderman, 1999	Personal task and approach ability goal orientations	5th- and 6th-graders	5th grade (fall, elementary school) and 6th grade (fall, middle school)	Endorsement of personal task goals declined and endorsement of ability goals increased across the transition. Coefficients of correlation were .55 for task goal orientation and .57 for ability goal orientation.
Meece & Miller, 1999	Task-mastery, performance, and work avoidance	Elementary school students, grades 3 to 5	October and May of each school year	Correlational evidence suggested that there was a reasonable degree of temporal stability in students' motivational goals. The magnitude of the correlations decreased when the measures were more than 1 year apart. There may be some fluctuation in goal scores over time. Significant declines in task-mastery and performance goals within the school year and across grade levels.

Elliot & McGregor, 2001	Mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance	College students	Two weeks before the first exam and 1 month and 2 months after the first goal assessment	Regressing the subsequent achievement goal variables on the basic model yielded strong evidence for the stability of each achievement goal (betas: .69 for mastery-approach, .67 for mastery-avoidance, .74 for performance-approach, and .67 for performance-avoidance).
Meece & Miller, 2001	Task-mastery, performance, work avoidance	Elementary school students, grades 3 to 5	Fall and spring of each year	The mean correlation (averaged across the assessments) was .44 for task-mastery, .58 for performance, and .45 for work-avoidance goals. Stability coefficients (.78-.88) indicated a reasonable degree of consistency in goal responses. With respect to change over time, both task-mastery and performance goals decreased. The findings for work-avoidance goals were less consistent. There were few significant changes in students' goal orientations as they made the transition to a new grade level. Changes in students' goal responses largely occurred between fall and spring of the same school year.
Smith, Sinclair, & Chapman, 2002	Task, performance-approach, and performance-avoidance orientations	High school students (year 12)	Beginning of the school year (February) and before the Trial Examinations (August)	No change in task goal orientation over time. Performance-approach scores decreased. Performance-avoidance scores increased (particularly among boys).
Grant & Dweck, 2003	Outcome, ability, normative, and learning goals	University students	Twice, at 2-week interval	The correlations between Time 1 and Time 2 ranged from .69 to .88. Participants' scores were substantially consistent over time.
Urdan & Midgley, 2003	Mastery, performance-approach, and performance-avoidance goals	Elementary and middle school students	Spring semesters of 5th, 6th, and 7th grades; transition to middle school	Goal orientations were moderately stable ( $r$ 's between .40 to .51). There was a decline in mastery goals from 5th to 6th grade, during the transition. This decline was not evident among students who perceived an increase in the classroom mastery goal structure. Students decreased in both types of performance goals from 6th to 7th grade.
Middleton, Kaplan, & Midgley, 2004	Task, performance-approach, performance-avoidance	Middle school students	The spring of the 6th and 7th grades	All goal orientations were moderately stable over time (stability coefficients: task .57, performance-approach .55, performance-avoidance .35). Performance-approach goals in 6th grade positively predicted performance-avoidance goals in 7th grade.

Veermans & Tapola, 2004	Learning, performance, and avoidance orientations	Primary school students	Once a year, for four years (from grade 3 to 6)	The within-construct correlations indicated that the highest stability was between the ratings in year 3 and year 4 for learning (.77) and performance orientation (.72), and for avoidance orientation between the ratings in year 2 and year 3 (.83). The highest variability was between the first two years. Regarding motivational groups, there were most stable cases over time in the learning orientation group.
Bong, 2005	Mastery and performance-approach goal orientations	High school girls	Twice within a school year, 6 months apart	Girls increased their personal mastery goals only in the context of general school learning. Otherwise, there were no changes in personal achievement goals.
Bråten & Olaussen, 2005	Mastery goals	First year college students	Fall terms of the 1st and 2nd years	Scores on mastery goal decreased from the 1st to the 2nd year. Despite overall decreases in adaptive motivation, many participants were able to maintain relatively high levels of motivation across the academic year, and some developed more adaptive motivation over time.
Freeman & Anderman, 2005	Mastery goals	Middle school students	The spring of sixth grade, the fall and spring of seventh grade	Students' mastery goals in 6th grade were positively related to mastery goals at both time points in 7th grade, suggesting stability over time (correlations: .44 and .43). Mastery goals increased from 6th to 7th grade.
Senko & Harackiewicz, 2005	Mastery, performance-approach, performance-avoidance	University students	Study 1: Twice during the semester (beginning and end) Study 2: Brief laboratory session	Study 1: Goal pursuit remained largely stable throughout the semester (betas from the regression analyses: mastery .53, performance-approach .59, and performance-avoidance .48), yet these goals were also adjusted during the semester in a manner associated with their early exam performance; poor exam performance predicted a significant decrease in mastery and performance-approach goal pursuit and an increase in performance-avoidance goal pursuit. Study 2: Goal endorsement remained stable during the session (betas: mastery .76, performance-approach .68, and performance-avoidance .49).
Gehlbach, 2006	Mastery and performance goal orientations	9th- and 10th-graders	Twice within a school year (beginning and end)	Moderate stability for goal orientations (stability coefficients .52 and .49 for mastery and performance goal orientations, respectively). The change was examined by looking at the change scores. Although the overall mean changes in mastery and performance goal orientations were small, individual students varied substantially from the beginning of the year to the end.

Fryer & Elliot, 2007	Studies 1 & 2: mastery-approach, performance-avoidance approach, performance-avoidance (in Study 3 also mastery-avoidance)	College students	Prior to each of three exams (a sequence of similar tasks; 5 weeks apart)	The differential continuity results indicate a high level of stability for all goals over the three exam periods. The mean-level change results provide evidence of stability for mastery-avoidance and performance-approach goals, but of malleability for mastery-approach and performance-avoidance goals (mastery-approach decreased, performance-avoidance increased). According to the individual-level change results, there was a decrease in mastery-approach and an increase in performance-avoidance goals. There were equal amounts of increase and decrease in both performance-approach and mastery-avoidance goals. The ipsative continuity results provide evidence of stability in individuals' goal configurations, although sizable ranges of profile consistency and dispersion were observed.
Chouinard & Roy, 2008	Mastery-approach, performance-approach, work-avoidance goals	Secondary school students, grades 7-11 (two cohorts)	Data were collected twice yearly (October and May) during three academic years	A regular decline of motivation in mathematics during high school. A gradual drop in mastery-approach goals through high school. Performance-approach goals and work-avoidance goals remained moderately stable across grade levels. The scores on all variables were lower at the end of the academic year than at the beginning.
Shim, Ryan, & Anderson, 2008	Mastery, performance-approach, and performance-avoidance goals	6th- and 7th-graders	Fall and spring of 6th and 7th grades; transition to middle school	An overall decline in all three types of achievement goals, because of within-year rather than between-year decreases. Declines within the school year occurred in both elementary and middle school.
Muis & Edwards, 2009	Mastery-approach, performance-approach, and performance-avoidance goal orientations for each task	University, undergraduate students	Four times: prior to two assignments and two exams	Study 1: The average correlation across time points and subscales was .65 (a range from .27 to .92). With the exception of two correlations that were considered low (both for mastery-approach), these correlations suggest a moderate to high level of stability for all subscales. Given that effect sizes ranged from moderate to large when changes occurred, the changes were noteworthy. Study 2: The average correlation across time points and subscales was .55 (a range from .22 to .82), which suggests a low to high level of stability. The mastery-approach subscale had the lowest level of stability, followed by the performance-avoidance, with the performance-approach having the highest level of stability. Results from the mean analysis revealed that students engaged in both goal intensification and goal switching and that the changes in goals were moderate to substantial.

Jagacinski, Kumar, Boe, Lam, & Miller, 2010	Mastery, performance-approach, and avoidance goals	College students	Twice: at the beginning and end of the semester	The achievement goals were relatively stable across time with correlations ranging from .51 to .64. Despite relatively strong correlations across time, there were significant changes in the mean levels of the endorsement of the goals. There was a significant increase in performance-approach goals and a decline in mastery goals across the semester. There was no statistically significant change in performance-avoidance goals.
Ciani, Sheldon, Hilpert, & Easter, 2011	Mastery approach, mastery avoidance, performance approach, and performance avoidance goals	University students	Three time points during the semester	There was no change in mastery-avoidance or performance avoidance goals; however, there was a decline in both mastery-approach and performance-approach goals over the semester. Those who perceived their teacher as autonomy-supportive were buffered against the sample-wide decline in mastery-approach motivation.
Creed, Tilbury, Buys, & Crawford, 2011	Learning, performance-prove, and performance-avoid goal orientations	Middle and high school students	Two occasions, one year apart	Significant stability coefficients for all variables (ranging from .51 to .73).
Schwinger & Wild, 2012	Mastery, performance-approach, and performance-avoidance goals	Students followed from 3rd to 7th grade	Five times: once a year from 3rd to 7th grade, including a transition to secondary school	Altogether 35% of the students maintained the same goal profile across the school years, whereas 65% of the students changed their goal profile at least once. Profile switching occurred mainly from high multiple goals to moderate multiple goals.

*Note.* This summary includes longitudinal studies in peer-reviewed, English-language journals that meet the criteria of addressing stability and change in students' achievement goals or goal orientations. Studies within the field of sports psychology were excluded from this summary.

## Appendix C. Cronbach's alpha reliabilities for all variables.

Variable (items per scale)	Study I	Study II				Study III	
	T1	Substudy IIa		Substudy IIb		T1	T2
Mastery-intrinsic orientation (3)	.87	.88	.85	.87	.86	.87	.86
Mastery-extrinsic orientation (3)	.86	.85	.87	.86	.89	.86	.84
Performance-approach orientation (3)	.71	.69	.73	.73	.77	.68	.72
Performance-avoidance orientation (3)	.82	.82	.83	.83	.87	.82	.85
Avoidance orientation (3)	.74	.72	.73	.74	.80	.73	.77
Self-esteem (5)	.75	–	–	–	–	–	–
Depressive symptoms (10)	.91	–	–	–	–	–	–
Exhaustion (3)	.61	–	–	–	–	.60	.77
Cynicism (3)	.83	–	–	–	–	.81	.87
Inadequacy (3)	.74	–	–	–	–	.75	.79
Schoolwork engagement (9)	–	–	–	–	–	–	.94
School value (3)	–	.73	.76	.69	.69	.71	.64
Satisfaction with educational choice (4)	–	–	–	–	–	–	.91
Fear of failure (3)	–	.80	.79	.70	.71	–	–
Academic withdrawal (3)	–	.72	.76	.72	.73	–	–
Commitment (2)	.70	–	–	–	–	–	–
Effort (2)	.86	–	–	–	–	–	–
Stress (2)	.84	–	–	–	–	–	–
Progress (3)	.76	–	–	–	–	–	–

*Note.* T1 = the first measurement point of the study in question;  
T2 = the second measurement point of the study in question.





## **Appendix D. Achievement goal orientation items used in the present study (based on an instrument developed by Niemivirta, 2002).**

### **Mastery-intrinsic orientation:**

I study in order to learn new things.

An important goal for me in my studies is to learn as much as possible.

To acquire new knowledge is an important goal for me in school.

### **Mastery-extrinsic orientation:**

An important goal for me is to do well in my studies.

It is important to me that I get good grades.

My goal is to succeed in school.

### **Performance-approach orientation:**

An important goal for me in school is to do better than the other students.

I feel I have attained my goal if I get better results or grades than many other students.

It is important to me that others think I'm able and competent.

### **Performance-avoidance orientation:**

I try to avoid situations in which I may appear dumb or incompetent.

I try to avoid situations in which I may fail or make mistakes.

It is important to me that I don't fail in front of other students.

### **Avoidance orientation:**

I am particularly satisfied if I don't have to work much for my studies.

I try to get away with as little effort as possible in my schoolwork.

I always try to do nothing more than just the required schoolwork.

